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Carpenter, Polly

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ABSTRACT
This Report describes a performance contracting program in Norfolk, Virginia; presents its results; and draws some inferences about the utility of performance contracting as a means for improving education. Participants were students from grades 7-9 in one junior high school and from grades 4-6 in one elementary school; both schools were in the inner city and had an almost entirely black student population. Learning Research Associates (LRA) provided the training and materials for conducting an individualized program of instruction in reading to the program teachers. Individualization consisted primarily of determining each student's strengths and weaknesses in reading by means of a diagnostic test, and assigning the materials that would remedy the weaknesses uncovered. Despite the improvement in classroom atmosphere, the results of the final testing showed that students at the junior high level gained in reading achievement only about as much as they had been gaining in the past and that students at the elementary level were, in many instances, scoring lower on post-tests than on pre-tests. Interim tests of performance on assigned objectives demonstrated that the students had actually reached the program objectives, but there is no way to prove that the program was responsible for these results. The Norfolk program demonstrated that performance contracting does not automatically solve the deeply rooted problems of compensatory education. For related documents, see ED 056 247, 249, 250, 251, and 252. (Author/CK)

CASE STUDIES IN EDUCATIONAL PERFORMANCE CONTRACTING

Polly Carpenter

R-900/2 HEW
December 1971

Prepared for the Department of Health, Education, and Welfare

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Rand
SANTA MONICA, CA. 90406

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CASE STUDIES IN EDUCATIONAL PERFORMANCE CONTRACTING

P. Carpenter

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NORFOLK, VIRGINIA

Prepared for the Department of Health, Education, and Welfare

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AA 000 739

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PREFACE

This Report is a product of Rand's study of performance contracting in education. The study is sponsored by the Assistant Secretary for Planning and Evaluation, U.S. Department of Health, Education and Welfare, under Contract No. HEW-OS-70-156.

Case Studies in Educational Performance Contracting comprises six volumes. Each is a self-contained study; together they provide a multifaceted view of performance contracting. The six volumes are:

1. R-900/1-HEW, *Conclusions and Implications,* by P. Carpenter and G. R. Hall
2. R-900/2-HEW, *Norfolk, Virginia,* by P. Carpenter
3. R-900/3-HEW, *Texarkana, Arkansas and Liberty-Eylau, Texas,* by P. Carpenter, A. W. Chalfant, and G. R. Hall
4. R-900/4-HEW, *Gary, Indiana,* by G. R. Hall and M. L. Rapp
5. R-900/5-HEW, *Gilroy, California,* by M. L. Rapp and G. R. Hall
6. R-900/6-HEW, *Grand Rapids, Michigan,* by G. C. Sumner

This study is the second of three Rand Reports on the subject. The first Report was J. P. Stucker and G. R. Hall, *The Performance Contracting Concept in Education,* The Rand Corporation, R-699/1-HEW, May 1971. The third Report will be a performance contracting guide intended for use by educational officials.

SUMMARY

For over ten years, national attention has been drawn to the State of Virginia's efforts to restructure public education to meet the expectations of the Federal Government with regard to school integration. Although these efforts initially focused on black students, there was a growing awareness that there were *both* black and white students throughout the state who were educationally disadvantaged. A few years ago, the Virginia State Department of Education engaged the Bureau of Research in the School of Education at the University of Virginia to undertake an extensive study of the educational needs of Virginia's public school students. This study highlighted the educational deficiencies of students not only in the inner cities but in the rural regions of the state.

The availability of Federal funds for compensatory education through Title I of the Elementary and Secondary Education Act, coupled with the rising popularity of performance contracting as a possible route to improved student achievement, encouraged the Virginia State Department of Education to embark upon an extensive performance contracting program for the 1970-71 school year. The program ultimately funded was directed at improving the reading skills of Title I students in seven Virginia school divisions—three in the Appalachian region, three in rural south-central Virginia, and the Norfolk City Schools. The program was evaluated by the Bureau of Research at the University of Virginia; Learning Research Associates (LRA), a subsidiary of Universal Education, Incorporated, provided the instruc-

tional elements of the program, and Education Turnkey Systems had a contract to supply management support to the State Department of Education and the school divisions.

This Report describes the program in Norfolk, presents its results, and draws some inferences from the Norfolk experience for the utility of performance contracting as a means for improving education.

The students selected to participate in the Norfolk program were from grades 7-9 in one junior high school and from grades 4-6 in one elementary school. These schools were in the inner city and had an almost entirely black student population; the faculties were racially mixed. Although the students in the program were academically among the poorest in the city, there were other inner city schools whose students were doing at least as poorly. In particular, students at one junior high school who were in the regular remedial reading program, funded under Title I, were even poorer readers than were junior high students in the program.

LRA provided the training and materials for conducting an individualized program of instruction in reading to the program teachers, who were former Title I reading teachers. The individualization consisted primarily of determining each student's strengths and weaknesses in reading by means of a diagnostic test, and assigning the materials that would remedy the weaknesses uncovered. A set of objectives in word attack, vocabulary, and reading comprehension had been devised, along with a rich variety of materials keyed to the objectives. The emphasis was on teaching basic reading skills; reading comprehension was not as heavily stressed, especially at the elementary level, because of the severe deficiencies of the students, some of whom were essentially illiterate.

Observations of student activities in the program classrooms in the late spring, compared with observations of regular classroom activities, verified that the teachers had succeeded in altering the method of instruction to a surprising degree. Students managed their own work with little difficulty and gave evidence of enjoying what they were doing. Regular classroom teachers believed that program students had become more interested in reading and had gained competence. Many teachers were envious of the wealth of materials to be found in LRA's reading centers (although the regular remedial reading rooms were fully as well endowed).

Despite the evident improvement in classroom atmosphere, however, the results of the final testing were disappointing. At the junior high level, students gained in reading achievement only about as much as they had been gaining in the past. What was worse, the post-test scores of students at the elementary level were, in

many instances, even *lower* than the pre-test scores. The reason for this unhappy result may have been a mismatch between the content of the instructional program and the content of the standardized tests used to measure its effectiveness. The heavy emphasis on word-attack skills was a natural first step in remedying severe reading deficiencies, but tests of word-attack skills, which must be administered orally, were not included in the standardized tests used because of difficulties of administration.

That the elementary students actually had reached the program objectives was demonstrated by a sampling of student mastery of these objectives in interim tests of performance on assigned objectives. These tests indicated that students had mastered an average of over 85 percent of the objectives assigned them. However, because there was no pre-test of these objectives, there is no way to prove that the program was responsible for these results.

The program used an independent evaluator to assure the integrity of test results, but also thereby thwarted the full use of evaluative data. Program personnel did not participate in the selection and administration of tests, so that the mismatch between test and program content at the elementary level was not readily apparent. An interim evaluation report might have pinpointed this difficulty as well as other problems of an administrative nature.

The actual cost of the program to LRA, Education Turnkey Systems, and the Bureau of Research at the University of Virginia was not divulged to Rand. What it would cost the Norfolk City Schools to implement the program as part of their regular compensatory curricula is of greater interest, however. A comparison of a rough estimate of this cost with a similar estimate of the cost of the existing remedial reading program funded under Title I suggests that LRA's approach would cost some 25 percent less. Since the two programs are probably of at least equal effectiveness (or will be if the content balance at the elementary level is improved), the LRA program appears to be a promising alternative for Norfolk. Two steps are now being taken that may correct the deficiencies of the 1970-71 program: restructuring the content at the elementary level for a better balance between word-attack skills and reading comprehension, and the use of a more interactive evaluation that will contribute directly to the improvement of the program as it develops.

The Norfolk program demonstrated that performance contracting does not automatically solve the deeply rooted problems of compensatory education. In fact, the mechanism of performance contracting can introduce difficulties in the development of effective instructional programs: in Norfolk, the need to maintain test security

virtually denied the use of evaluative data for program improvement during the crucial implementation phase. Tying contractor payment to students' scores on tests also highlighted the problems of test selection and administration.

There were some positive features, however, and they were sufficiently attractive to encourage the Norfolk City Schools to expand the LRA approach during the 1971-72 school year. First, the performance contract brought talent from outside of the school system to bear on a serious educational problem. A considerable amount of time and money had already gone into the development of the LRA system—money that came from publishers and others in the education industry. The fruits of this investment were made available to Norfolk.

Perhaps more important, outsiders working under a guarantee of reward for good performance seemed to be able to operate more freely than could people with established roles in the school environment. The improved emotional atmosphere within the reading centers probably had a strong impact on everyone who observed the program. This atmosphere was largely a result of LRA's emphasis on student self-direction and was implemented in the reading centers in a surprisingly short time.

In sum, radical departures from customary practice were adopted and are being extended in Norfolk's target schools.

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We wish to express our appreciation for the extensive assistance given us by the Norfolk City Schools in providing data, information, and valuable insights. Special thanks are due to Daniel Avent, Instructional Development Coordinator and Project Director, Donna Doyle, Supervisor of Group Testing, Florence Whitehurst, Assistant Supervisor of Group Testing, and Karl Roth, Principal of Saint Helena Elementary School.

Many members of the Rand staff also made useful contributions. In particular, Arnold Chalfant shared the tasks of field observations, data gathering, and interviewing; Susan Landa performed the statistical analyses; Sue Haggart provided the rationale and computations for the cost comparisons; and the reviews of George Hall, Gene Fisher, and Midge Rapp contributed substantially to the improvement of this Report.

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I. INTRODUCTION

This Report describes the performance contracting program in Norfolk, Virginia, during the 1970-71 school year. Norfolk was one of seven school divisions[1] participating in a performance contracting program for teaching reading, sponsored by the Virginia State Department of Education. The other participants—school divisions in Wise County, Dickenson County, and Buchanan County (often referred to as "Southwest"), and in Prince Edward County, Mecklenburg County, and Lunenburg County (often referred to as "Southside")—are shown in Fig. 1. These divisions were chosen by the State Department of Education to provide a representative sampling of the state's Title I schools. The program students in Norfolk and Southside were primarily black, those in Southwest primarily white.

Besides the State Department of Education and the school divisions, the Bureau of Research in the School of Education at the University of Virginia at Charlottesville participated in the program as the independent evaluator, Education Turnkey Systems contracted to provide management support, and Learning Research Associates, a subsidiary of Universal Education, Incorporated, provided the instructional elements.

This Report begins with descriptions of Norfolk and the Norfolk School Division. It then describes the program schools and their surrounding neighborhoods, and regular classrooms in the program schools and in the remedial reading program

[1] In Virginia, a school division is equivalent to a school district in other states.

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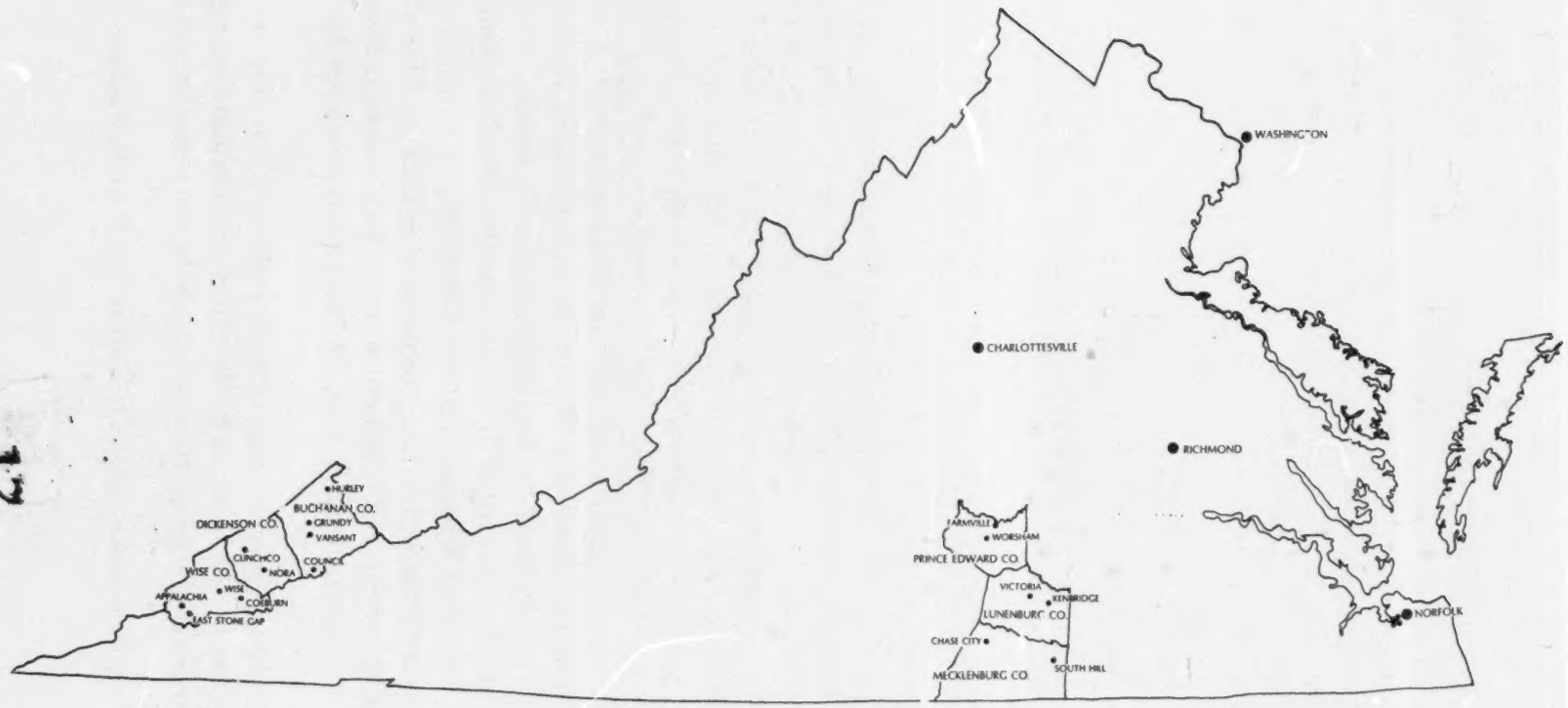

Fig. 1—Location of Counties and Schools in Virginia Program

funded under Title I. The latter description provides a basis for comparison with the contract reading centers.

The program plan is then analyzed and the parties to the contract (other than the Norfolk School Division) are described. The history of the program as it actually developed is then treated in some detail, concluding with an assessment of the outcomes of the program as well as its costs.

A final section presents some conclusions as to the impacts of the program on the Norfolk School Division.

II. THE NORFOLK SCHOOL DIVISION

Norfolk is an Atlantic seaport in the southeastern corner of Virginia (see Fig. 1). In 1970, Norfolk's population was about 300,000 with about 28 percent black.[2] Its outstanding harbors make it an ideal port and naval base, and most of the key installations of the U.S. Navy's Atlantic Fleet are in the area. The port and naval installations provide major support for the area's economy. The Federal Government employed 17 percent of working civilians in the Norfolk-Portsmouth Standard Metropolitan Statistical Area in June 1971.[3] This results in a relatively stable economy and moderate rate of unemployment compared with other cities of similar size. In June 1971, 5.1 percent of the Norfolk-Portsmouth civilian labor force was unemployed.

Even so, about 30 percent of Norfolk's families (not including single-person families) had an annual income of less than $3000 in 1965; thus, there was a sizable population below the poverty line. In addition, of persons 25 years old or older, about 27 percent had less than an eighth-grade education in 1966.[4] As with other cities in its class, aggregate data characterizing Norfolk are misleading, since they tend to

[2] U.S. Department of Commerce, Bureau of the Census, *1970 Census of Population, General Population Characteristics,* Advance Report PC(V2)-47, Virginia, 1971.

[3] *Trends in Employment Hours and Earnings, Virginia and Standard Metropolitan Areas,* Vol. 21, No. 7, Division of Research and Statistics, Virginia Department of Labor and Industry in cooperation with U.S. Bureau of Labor Statistics, Richmond, Virginia, July 1971.

[4] *Neighborhood Analysis,* Norfolk City Planning Commission, August 1967.

understate the magnitude of the problems that exist in the inner city areas. These problems are discussed at greater length in Sec. III.

The Norfolk School District comprises three senior high schools including grades 9 through 12, two senior high schools including grades 10 through 12, ten junior high schools including grades 7 through 9, and 61 elementary schools including various combinations of grades 1 through 6. Total "membership"[5] as of the end of January 1971 was about 54,000 students, with about 23,000 in secondary schools and 31,000 in elementary schools. Total enrollment for the 1970-71 school year (students who have entered school during the school year) was about 59,000 students to that date, indicating a net loss of about 5,000 students during the school year. Table 1 presents statistics on student enrollment provided by the central administration of the school division.

The central administration of the Norfolk School Division controls the budget, the hiring and firing of teachers, and the specifications of curriculum. Budget requests are submitted by building principals, and in general, money is allocated on a per-pupil or a per-teacher basis. Building principals, of course, exercise some degree of control over the teaching styles of classroom teachers, depending on their personal ways of running their schools. Thus, a fair degree of autonomy can exist at several levels in the system even though the central administration holds the purse and personnel strings.

Norfolk spends about $41 million a year on its public schools, or about $750 per student. Of this, $20 million is supplied from the city, $13 million from the state, and $8 million from the Federal Government.[6] The Federal Government supplies considerably more support (about 19 percent of the total) for public education in Norfolk than the national average of around 7 percent, primarily because Norfolk receives about $4 million as a Federally impacted area. Since the per-pupil cost for Virginia as a whole is around $700, one might conclude that Norfolk is contributing relatively less to its public schools in light of its ability to pay. Norfolk ranked 26th out of 35 Virginia cities in terms of equivalent true tax rate in 1968.[7]

The direct avenues for community control of the schools that exist in other big-city school districts seem to be lacking in Norfolk. Citizens cannot express their

[5] Students who are actually in school at the time the roll is taken or who are presumed to be in school and not to have dropped from the rolls.

[6] *Financial and Statistical Data,* Norfolk City Schools, December 1970.

[7] Equivalent true tax rate = (local expenditures) ÷ (wealth per child based on values of real estate and public service corporations). *Facing Up: Statistical Data on Virginia's Public Schools,* State Department of Education, Richmond, Virginia, January 1970.

Table 1

SUMMARY OF ENROLLMENT AND MEMBERSHIP REPORT
OF SCHOOL BOARD OF THE CITY OF NORFOLK,
JANUARY 31, 1971

Grade	Membership on Roll, January 31		Total Membership 1970-71
	Secondary	Elementary	
1-3	--	15,267	15,267
4-6	--	14,035	14,035
7	3,498	1,276	4,774
8	4,543	--	4,543
9	4,195	--	4,195
10	3,705	--	3,705
11	3,486	--	3,486
12	2,801	--	2,801
S.E.[a]	300	672	972
Total	22,528	31,250	53,778

School Level	Enrollment 1970-71	A.D.A.[b] 1970-71
Secondary	24,384	19,760
Elementary	34,408	28,721
Total	58,792	48,481

[a]Special education.

[b]Average daily attendance.

views through school bond elections or votes on changes in basic tax rates. Instead, the schools depend for their financing on the city council, through which their budget goes and from which city taxes are meted out. The city council sets the tax rate and is accountable to the citizens only through the election of council members. The council finances buildings and operations through bonds floated within their existing bonded indebtedness. Even Federal funds for public education must at least formally pass through the city council.

The school board is appointed by the city council rather than elected by the citizens of Norfolk; therefore, citizens cannot directly influence its composition. The board only sets general policy and leaves the administration of the schools to the staff of the school division. The Education Association of Norfolk, the only group representing Norfolk teachers, works directly with the board in support of teachers' interests. There is apparently no teachers' group expressing independent opposition to school board policies as is found in cities with teachers' unions.

The foregoing may partly reflect a general lack of concern with the public schools in the community at large, a conclusion supported by opinions expressed by a dozen or so school and community leaders, building principals, and teachers. In the past, students whose families could afford it attended private schools; families of students in the public schools were less involved with the content and quality of education than with other aspects of schooling. The most salient example is the intense concern of the community with the continuing process of school integration, which has radically altered the school system during the past year. In 1959, the Norfolk City Schools were closed in compliance with the State of Virginia's "massive resistance" efforts toward school integration. The case has been in court ever since, but progress in integration was slow.

As of April 1970:

> All secondary schools in the city have racially mixed student bodies. The longer range plan calls for making the racial balance in secondary schools the same as that in the rest of the city—about 70% white and 30% black. . . . Thirty-five out of 54 elementary schools have racially mixed student bodies. Student bodies are 100% black or white only where reasonable school districts cannot be drawn to include housing occupied by both races.[8]

[8] *Model Cities' Second Year Plan,* Model Cities Agency, U.S. Department of Housing and Urban Development, Norfolk, Virginia, April 1970.

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Before the beginning of the 1970-71 academic year, school district boundaries were redrawn, students were to be bussed across district boundaries, and faculties in all schools were altered to attain a racially mixed staff. At Campostella, (one of the comparison schools in the performance contracting program) only six former teachers remained out of a staff of 25. Bussing of students was compulsory, and parents had to pay $5 a month for each child bussed. This worked an obvious hardship on poor families with large numbers of children. It also caused considerable disruption in some schools (apparently depending in large part on the leadership in particular schools) and in some cases resulted in the departure of white students from the Norfolk public schools to private schools or elsewhere. After a relatively stable membership that peaked at around 56,000 students in 1969-70 (see Table 2),

Table 2

TRENDS IN MEMBERSHIP, NORFOLK CITY SCHOOLS

School Level	1965-66[a]	1966-67[a]	1967-68[a]	1968-69[a]	1969-70[b]	1970-71[b]
Total Secondary	20,511	20,102	21,134	21,683	23,444	22,538
Total Elementary	33,496	33,448	32,893	32,393	32,398	31,250
Total	54,007	53,550	54,027	54,076	55,842	53,778

[a]Membership as of June of academic year. Taken from *Enrollment and Membership Report*, School Board of the City of Norfolk (periodical).

[b]Membership as of January of academic year.

1970-71 saw a drop of about 2000 students, "probably 70 percent of whom are white," according to one official. That desegregation may be having an effect on the number of whites with school-age children in Norfolk is also suggested by the recent census figures, which give the Standard Metropolitan Statistical Area (SMSA) of Norfolk a total black population of about 28 percent, but indicate that nearly 39 percent of the population in the 5 to 14 age group is black.[9] The fact that the total black

[9] Bureau of the Census, op. cit.

population of the Norfolk-Portsmouth area is about 25 percent, while only 23 percent of the population in the 5 to 14 age group is black, indicates that the former figures do not simply reflect a propensity of blacks to larger families.

Norfolk provides kindergarten only under Federal funding; instruction in reading (except as part of language arts) in the later elementary grades (4 through 6) is also provided solely by Federal funds under Title I of the ESEA and Model Cities. Students are usually not held back more than two years in a single grade, although "social promotions" are not explicitly supported by division policy. It is not unusual, however, to find students who are relatively older than their peers in the upper grades. For example, nearly 55 percent of the eighth-grade students in the reading program at Campostella Junior High were one or more years older than the normal 14. The minimum age at which a student may legally leave school in Virginia is 17.

There are still remnants of the former Norfolk tracking system in which the guidance counselors placed students in either regular, "modified" (i.e., below average), or accelerated classes. The "modified" track has been abolished in some schools on the basis that it tended to perpetuate segregation.

After the third grade, students study language arts (based on Roberts' series of English texts), arithmetic, social studies, and science, with additional time for physical education, music, and other activities. Beginning in the seventh grade, students can choose from a wide variety of electives such as home economics, Spanish or French, metalwork, electrical work, woodwork, business, mechanical drawing, art, or band. Remedial reading programs under Title I are available in all Title I schools, but are provided to relatively few students. In addition, a program for "teaching reading in the content areas" is provided at the target junior and senior high level, also under Federal financing. This program trains subject-matter teachers to use their subject as vehicles for teaching reading; reading is not taught *as such,* however. It is not too surprising, therefore, that many students, particularly those blacks who do not use so-called "standard English" in the home, remain functionally illiterate throughout their progress through school. For example, the median score achieved by 30 percent of the lowest-scoring seventh-graders on the comprehension section of the Iowa Silent Reading test given in March 1970[10] was equivalent to grade 4.1 in terms of national norms.

[10] *Group Testing Annual Report,* 1969-70, Norfolk City Schools, August 1970.

III. SCHOOLS IN THE PERFORMANCE CONTRACTING PROGRAM

Four Norfolk schools participated in the performance contracting program—two elementary and two junior high. All four schools are in inner-city neighborhoods, shown in Figs. 2 and 3. At the elementary level, students in grades 4, 5, and 6 at St. Helena formed the treatment group, while students in the same grades at Young Park were used for a comparison group; students in grades 7, 8, and 9 at Jacox Junior High were selected for the treatment group, while the comparison group was drawn from the seventh grade at Campostella Junior High.

The socioeconomic conditions in the neighborhoods surrounding the four schools are quite similar, although both of the comparison schools (Young Park in particular) draw from populations of somewhat poorer status than the treatment schools. This conclusion is supported by data presented in the Neighborhood Analysis[11] and summarized in Table 3. (Computations for Table 3 are displayed in the Table of Appendix D.) Only those Planning Districts[12] that are predominantly black were used because the program students were black, with only a few exceptions. A school survey in 1970 provided percentages of students from "low-income" (< $3000?) families as follows: St. Helena (treatment) 57 percent; Young Park (comparison) 69 percent; Jacox (treatment) 54 percent; Campostella (comparison) 71 percent. Thus,

[11] Norfolk City Planning Commission, op. cit.

[12] Geographical divisions used by the Norfolk City Planning Commission (see Figs. 2 and 3).

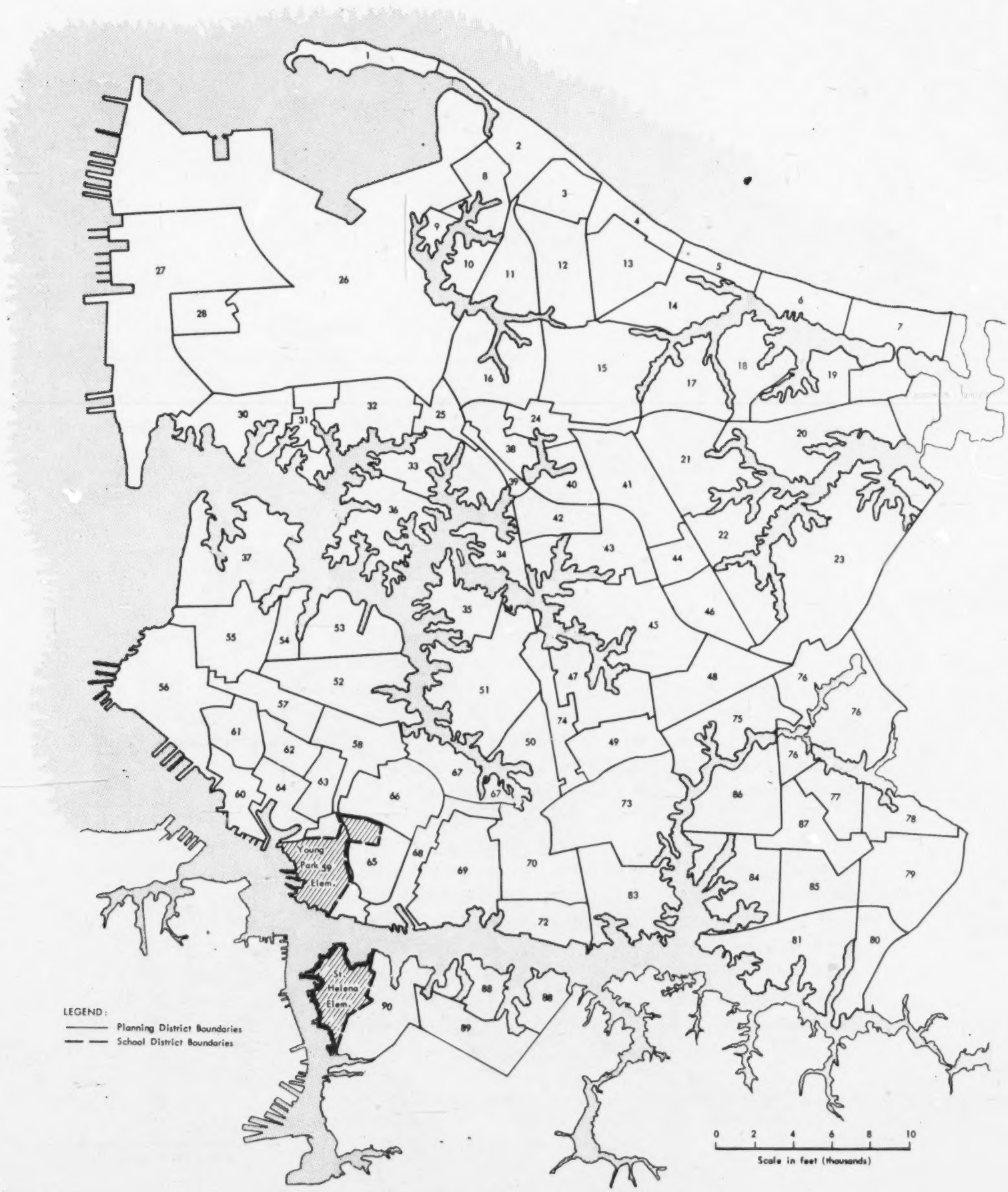

Fig. 2—School Districts and Planning Districts: City of Norfolk, Virginia (Elementary)

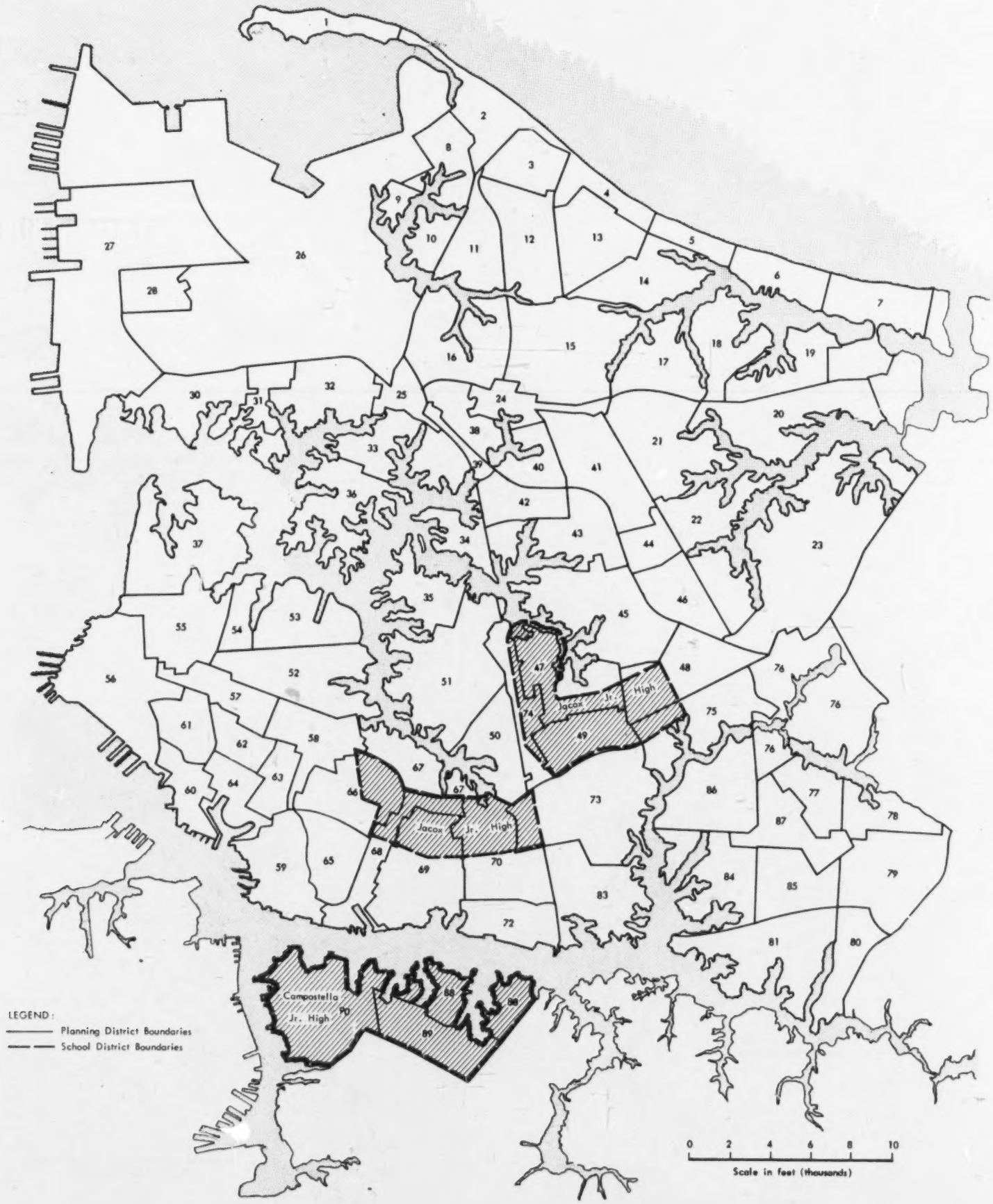

Fig. 3—School Districts and Planning Districts: City of Norfolk, Virginia (Junior High)

Table 3

SOME CHARACTERISTICS OF BLACK COMMUNITIES SURROUNDING PROGRAM SCHOOLS, 1966

School	Program Role	Percent of Families with Annual Income <$3000	Percent of Persons in Labor Force Unemployed	Percent of Persons 25 or Older with <8th Grade Education	Death Rate, Infants <1 Year (percent)	Percent of Families Receiving AFDC
Young Park Elementary	Comparison	73	7.6	57	6.9	10.9
St. Helena Elementary	Treatment	45	6.1	58	4.5	3.9
Campostella Junior High	Comparison	46	6.9	52	3.8	6.4
Jacox Junior High	Treatment	46	6.0	49	1.2	4.0
Citywide average		29	3.3	27	1.2	1.4

SOURCE: Computed from data in *Neighborhood Analysis*. See table in Appendix D.

both of the comparison schools drew from lower-level income families than did the treatment schools.

In writing about the Model Neighborhoods Area, in which the program schools are found, Model Cities personnel had this to say:[13]

> The ... area is populated with groups of people who have traditionally accounted for the lowest family incomes in our society—blacks, elderly families, families on welfare, female heads of households. Each of the neighborhoods ... has a high black to white ratio ...[14] The current average formal education level ... is two grades below the city average, and the functional or actual educational gap is estimated to be much wider.

Thus, even the fact that over half of the adult population in 1966 has had less than an eighth grade education does not truly reflect the ability of the residents to compete in the job market, because as noted before, students who literally cannot read are common in the later elementary grades. Their progress through school is justified by their ability to remember material taught orally.

> Much of the above situation is generational and is rooted both in past discrimination patterns and the results of those patterns and other factors working over a long period of time. The general nature of the local employment market and the residents' abilities to compete in that market are examples. The regional economy is wide in terms of variety of available job opportunities but it is not very deep—there are always jobs available, but not in great quantities as in regions dominated by heavier industry, and the jobs that do become available in any quantities at all are either in the "upper reaches," requiring significant amounts of education and/or experience, or at the other end of the scale, requiring little education, skill or work experience and offering little psychological or cash compensations.
>
> ... student achievement levels as measured by a variety of standard testing procedures are low in comparison with achievement levels of students in other schools around the city ... The proportion of Model Neighborhood Area high school students going on to higher education is estimated at about 1/4, while almost 1/2 of students from schools in the rest of the city do so ...

[13] Model Cities Agency, op. cit.

[14] One hundred percent in some neighborhoods.

> Norfolk households increased by 20,250 from 1950 to 1968, but again a significant drop in the rate of increase is evident, as 13,600 occupied housing units were added during the 1950's *versus* 6,650 during the 1960s . . .As in the Model Neighborhood Area, Norfolk's slowdown has been accompanied by a continuing racial shift in housing occupancy. White household increases in Norfolk during 1950-68 outgained Negro household increases (10,900 to 9,750), but almost all of the white increases (10,400) occurred during the 1950s while two-thirds of the Negro gains (6,150) occurred during the 1960s.
>
> From the time [of] the first public school integration in 1964 until 1968, vacancy levels in the white occupied housing inventory have been above normal and housing occupancy shifts from white to black occurred at a record rate in Norfolk. The fastest changing Neighborhood Areas contained the worst housing in terms of age and conditions, were in close proximity to redevelopment activities and were the easiest accessible to low- and moderate-income families facing a shortage of standard units. Housing areas with small changes in racial occupancy were those located away from inner city concentrations of ill-housed low-income negroes and which had public school integration of less than 30 percent initially.[15]

Except for Jacox Junior High, the program schools were relatively unaffected by the 1970-71 school year desegregation plans. The student bodies of both St. Helena and Campostella were all black, although the facilities were mixed. Young Park Elementary is in the middle of a housing project, and its students were also all black, with mixed faculty. Jacox, however, is near the edge of the black area downtown and was supposed to draw white students from an area nearby (see Fig. 3). The expected total enrollment for Jacox was to be 1300 students, 800 of whom were to be white. Instead, only about 300 of the whites to be transferred to Jacox actually enrolled, and there was trouble at the school throughout the year. Extracurricular activities were reduced in order to minimize opportunities for trouble, the PTA was disbanded, student dances were forgone, and recess periods stopped. School and community leaders did not, however, take the case of Jacox as proof that integration would not work in Norfolk, because there was little trouble at Booker T. Washington, an integrated senior high in the Jacox area. In fact, some of the same parents who had children at Jacox strongly supported Booker T. Washington.

[15] Model Cities Agency, op. cit.

Discipline was a minor problem at both of the elementary schools, and most troubles were not of a serious nature. This was not true at the junior high level, where suspensions were common. Although records of referrals and suspensions are kept, the information is extremely difficult to retrieve, being filed alphabetically in special folders. Rand personnel discussed the records for some of the treatment students at Jacox with the Assistant Principal, but he (and we) felt that it was not possible to determine whether the apparently improved attitude of a few of the students was attributable to the program or to social maturation.

Some characteristics of students in the program schools are summarized in Table 4. Both of the treatment schools are considerably smaller than the schools from which comparison groups were drawn. In fact, St. Helena is so small that essentially the entire fourth, fifth, and sixth grades were needed to supply the 125 students for the program. At Jacox, however, only about a seventh of the students were in the program.

The table demonstrates that the students in both the comparison and treatment schools are different in several ways from the average for Norfolk. Absence rates are higher at both the junior high and elementary levels, and IQs and reading scores are lower. In fact, the reading scores for St. Helena and Young Park may be deceptively high, since the lowest score attainable on the SRA test is 3.1![17] The lower net loss for the program schools appears anomalous at first hand; however, this may be a reflection of the lower mobility for the black population than for Norfolk as a whole.

> The . . . brief profile of a predominantly low-income, black population with a significant proportion of elderly households concentrated in one area is important in terms of mobility—i.e., the population's continued occupancy of an area of marginal living conditions *vs* the abilities of groups within it to move somewhere else. Mobility rates developed by Hammer, Greene, Siler and Associates by race and income levels indicate that as a whole, blacks are less mobile than their white counterparts and that low-income blacks are least mobile of all. Model City blacks fall into the lowest mobility categories —the significant number of elderly households adds to the general immobility of the low-income population, since their needs are fairly static and habits set.[18]

[17] *Science Research Associates, Multi-Level Test, Form C, Blue Level Teacher's Handbook,* Science Research Associates, Chicago, Ill., 60611.

[18] Model Cities Agency, op. cit.

Table 4

CHARACTERISTICS OF STUDENTS IN PROGRAM SCHOOLS

School	Program Role	Net Loss 1969-70[a] (percent)	Absence Rate to 1/31/71[b] (percent)	IQ	Reading	Membership to 1/31/71[b]
Jacox	Treatment	9	14	90[c]	5.4[d]	870
Campostella	Comparison	8	14	91[c]	5.1[d]	1,138
Citywide Junior Highs		14	11	108[c]	6.6[d]	12,296
St. Helena	Treatment	3	10	85[e]	3.2[f]	587
Young Park	Comparison	10	13	82[e]	3.6[f]	332
City Elementaries		16	8	92[e]	4.5[f]	31,250

[a]Taken from *Enrollment and Membership Report*, School Board of the City of Norfolk, May/June 1970. Net loss = (Enrollment - Membership) ÷ Enrollment.

[b]Taken from ibid., January 31, 1971. Absence rate = (Membership - A.D.A.) ÷ Membership.

[c]California Test of Mental Maturity, grade seven, September 1969.[16]

[d]Iowa Silent Reading, grade seven, March 1970.[16]

[e]Lorge-Thorndike, total, fourth grade, 1969.[16]

[f]Science Research Associates, SRA Achievement, fourth grade, March 1970.[16]

[16] *Group Testing Annual Report, 1969-70,* Norfolk City Schools, August 1970.

The most striking difference between the treatment and comparison schools is the very low loss rate at Young Park. This is probably because most of these students live in the Young Park public housing development, which may discourage mobility.

The classroom teachers at the program schools are mostly white, married women who have from 5 to 10 years of teaching experience. Those interviewed all had bachelor's degrees, by and large earned at nearby colleges and universities such as Old Dominion University in Norfolk or Virginia State College in Petersburg. Most of the teachers were also engaged in furthering their education, frequently by taking graduate-level courses at Old Dominion University.

Both of the building principals for Jacox (treatment) and Campostella (comparison) junior highs are male and black; St. Helena's (treatment) is male and white; Young Park's (comparison) principal is female and black. This small sample is indicative of the extent of desegregation in Norfolk, at least within the staff of the school division.

The regular (nontreatment) classes observed at the elementary level at St. Helena and Young Park contained about 25 students. The classroom teacher taught the same group of students for about 6 hours, with breaks for rest and lunch and with some relatively free time in the classroom during which other teachers conducted special activities such as music or physical education. Teachers shared aides who assisted them by grading papers and performing other services. The teaching method most frequently observed was teacher-directed class discussion and oral drill, sometimes focusing on a media presentation such as a filmstrip. Teachers seemed almost to avoid working with the printed page—possibly because of the mismatch between the materials provided and student reading capabilities. For example, the fifth grade used Roberts' English for the fifth grade—far too sophisticated for children with almost no reading skill. The rooms at St. Helena appeared to be better furnished and equipped than those at Young Park, which seemed to be an older or less well-maintained school.

Teachers of academic subjects at the junior high level carried four classes with an average enrollment of about 30 students per class. In addition they had a conference period for planning their work, previewing films, and so on, and they had other assignments such as hall duty or serving as a lunchroom supervisor. The teaching method was again teacher-directed class discussion and oral drill. Teachers tried to individualize instruction to some extent by grouping students by ability level for work at their desks, but full individualization was impossible because of the range of abilities to be accommodated and the lack of materials and equipment to fit this

range. Even in "accelerated" classes at the junior high level, there were students who lacked basic reading skills. Some teachers supplemented regular texts with special materials in an effort to fill the gap between materials written for the students' grade level and their true academic skills.

IV. OTHER READING PROGRAMS IN NORFOLK TITLE I SCHOOLS

In addition to the performance contracting program, Title I funds are being used to finance two other reading programs in the Norfolk schools. These will be described briefly because they are being compared with the performance contracting program. One is essentially a remedial reading program conducted at both the elementary and junior high levels. This is closest to the performance contracting program in intent because its objective is to improve student reading skills; therefore the remedial reading programs at Jacox and St. Helena were replaced by the performance contracting program.

The other reading program is aimed at teaching reading by stressing that skill in the course of regular classroom teaching of academic subjects such as social studies. Termed "teaching reading in the content areas," the program is provided at junior and senior high schools. Although this program is not as close in objective to the performance contracting program, it could be more effective in improving reading *comprehension* because of its stress on that skill. Jacox retained its program for teaching reading in the content areas.

In general, classes in remedial reading are small—on the order of 10 to 12 students per class—and contain children from several grades. Reading teachers carry a total load of about 60 students, somewhat less than half the number of students instructed by a teacher in the performance contracting program. At the

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elementary level, the teacher handles six classes a day, four days a week, with one day for planning. Like other elementary teachers, she has a half-hour for lunch and short breaks between classes. During her planning day, other students who are having difficulties often come to her for help. At the junior high level, the reading teacher teaches five periods of reading and has one period for planning, during which time students also come for additional help.

Rooms for remedial reading are considerably smaller than regular classrooms and are somewhat less formally furnished. Students often work around tables or in small groups. A large variety and number of books, workbooks, filmstrips, kits, and games are available, supplied by Title I funds. In one class, students were working with a Hoffman teaching machine.

The teaching method used seems to be largely contingent on the individual teacher's approach. One teacher used teacher-directed, small-group instruction almost exclusively, drawing on only a few of the materials available. Another arranged for each student to work relatively independently, drawing from a wide variety of materials as needed. Neither teacher had devised a system whereby each student could get and return materials as he needed them and could check his own progress. This is probably why the more "individualized" classroom looked disorderly and "inefficient," in terms of the amount of time that each student was actually working, compared with the more structured class.

The program for reading in the content areas is also funded by Title I and Model Cities. Its objective is to improve reading skills by training teachers to use subject-matter materials to this end. Originally, teachers were required to attend in-service training sessions during the school year, but during the 1970-71 year attendance was voluntary, apparently because some teachers resented being required to attend. The "reading content" program is being conducted in seven schools—two senior highs and five junior highs. In each of the senior highs there is a coordinator for the program and a reading content specialist for each of the major disciplines—social science, science, math, and English; in each of the junior highs, the coordinator works with only two reading content specialists. Each reading content specialist, who is a classroom teacher, works in turn with two regular teachers.

The central administration has evaluated the performance of students who have teachers who are reading content specialists. Although the data are not available at this writing, the evaluators expect that the Stanford Achievement Test[19] will show significant differences in gain over the November-to-May period between stu-

[19] Unfortunately, the SAT was not used to evaluate the performance contracting program.

dents who did and who did not have teachers who were reading content specialists. The evaluators also have administered a measure of student attitude, developed by Dr. Herber of Syracuse University, who has devised the reading content program. Ed Doughtrey, Program Supervisor, may be contacted for further information. Although it is highly desirable to determine whether a program has had any effect on student attitude, questionnaires of this type may reflect what the respondents think they should answer as well as what actually motivates their behavior.

V. PERFORMANCE CONTRACTING PROGRAM: INITIAL STAGES

In the spring of 1970, Governor Linwood Holton and Dr. Woodrow W. Wilkerson, Superintendent of Education for the State of Virginia, were convinced by Peyton Cleveland, Washington-based consultant to the Governor's office,[20] that performance contracting would be desirable for Virginia. Dr. Wilkerson and others in the State Department of Education saw this as an opportunity to follow through on some of the recommendations put forth in the educational needs assessment study done for the state by the Bureau of Research in the School of Education at the University of Virginia, Charlottesville. Education Turnkey Systems (ETS) was already in contact with Dr. Wilkerson's advisors and offered advice and assistance from the outset.

The State Department of Education obtained permission from the Office of Education to use administrative money under Title I to employ a management support group and an independent evaluator. At first, the State Department wanted the contractor to guarantee to achieve stated behavioral objectives in reading and math for students in the lowest-income counties in the state—Norfolk inner-city schools, Dickenson County, and Prince Edward Country. However, at the first meet-

[20] "Where It's Happening," *Education Turnkey News*, Vol. 1, No. 2, Education Turnkey Systems, Inc., May 1970.

ing, the superintendents of schools for these counties resisted diverting enough current Title I funds to pay for programs in both reading and math. In addition, ETS pointed out that no company would bid on previously stated behavioral objectives (probably because such objectives would be unlikely to correspond with those dealt with by any one company's materials and techniques). Therefore, the program was cut back to reading only and extended to cover students in four more counties, and the behavioral objectives were left up to the contractor. Representatives from each of the seven school divisions attended the second meeting, after which the Request for Proposal (RFP) was written.

About 40 bidders responded to the RFP by attending the bidder's conference in July. At the conference, representatives from each of the school districts, including classroom teachers, and state administrators of Title I funds scored the proposals submitted, using criteria provided by ETS. The choice was almost unanimous for Learning Research Associates (LRA), who sent Alan Cohen as their representative. Cohen had developed a practical approach to the teaching of reading that appealed to the teachers involved and convinced them that LRA[21] had the most to offer in the way of instruction. As usually happens, the bidders' conference generated considerable rancor among the closest contenders and their supporters.

The contracts for independent evaluation and management support were sole-source; that is, they were awarded to a preselected contractor without competitive bid. The State Department of Education had worked with the Bureau of Research in the School of Education in the past and wanted to continue that relationship. Dr. Charles Woodbury of the Bureau wrote the first draft of the contract; then the State Department wrote the final version.[22] The Bureau will receive $74,000 for its work (nearly half of the maximum that LRA could receive for the statewide program). The same general procedure was followed with ETS, but no copy of the contract has been supplied to us, and we do not know what ETS received.

THE PARTIES TO THE CONTRACTS

Lee Brown, president of LRA, was formerly a vice president of Science Research Associates (SRA), where he worked on the design of the now-famous SRA reading

[21] LRA's proposal is attached as Appendix A.

[22] Attached as Appendix B.

kits. He subsequently formed Learning Materials, Inc., to support the rewriting of the kit, and later formed the company which became LRA in 1968, a subsidiary of Universal Education Corporation. LRA attempts to improve public education at all levels by activities such as conducting workshops, working with school districts, and training administrators; there are 16 full-time staff members and numerous consultants. Among other things, LRA worked with schools in Pittsburgh and Fort Lauderdale and at the Nova school in Florida to develop programs of Individually Prescribed Instruction (IPI). Roy Stern, LRA's Director of School Services, believes that performance contracts are an effective way to introduce change into the schools and that once a school system has successfully completed a performance contracting program the contractor should withdraw from primary responsibility for classroom instruction.

When the Virginia contract came up, Brown persuaded Cohen to join him on it to provide the teacher training and troubleshooting in the field. The LRA proposal includes statements concerning a subcontract to Urban Education, Inc., originally a group of educators (including Cohen) that evaluated Federally funded programs in the New York area. Cohen stated that there was never a formal contract with either UEI or himself, however—that the work he and his students at Yeshiva University performed in Virginia was done directly for LRA. Perhaps at the time LRA's proposal was written, someone in LRA felt a need to formalize the relationship between themselves and Cohen's group. Stern has supplied most of the purely managerial contacts between LRA and the Virginia schools.

THE CONTRACTS

The evaluation contract specifies little in detail; instead, the details of the evaluation are defined by implication in the contract with LRA.[23] Because the evaluation contract is so brief, it will not be discussed further here.

Although a copy of the contract with ETS has not been made available, the State Department of Education informed us that ETS contracted to perform the following tasks:

- Assist the State Department in conferring with local divisions.

[23] Attached as Appendix C.

- Write the RFP.
- Provide a list of prospective bidders.
- Help negotiate the contract and conduct the prebidders' conference.
- Conduct the evaluation of the proposals.
- Help with monitoring and data gathering.
- Calculate the cost of the program.[24]

Most of these activities were pointed toward assisting the State Department of Education in monitoring the progress of the program throughout the state rather than toward assisting the school divisions themselves.

The preliminary draft of the contract between LRA and the Norfolk Public Schools, drawn up by ETS in September 1970, contained most of the major features of the contract that was eventually signed (Appendix C). There were, however, some important additions and changes (in addition to legal language), which will be discussed as the main points of the contract are reviewed.

LRA's primary responsibilities, set forth in section 1.04, were as follows: to provide a reading program comprising objectives for student performance, diagnostic tests of student mastery of these objectives, self-instructional materials keyed to the objectives, and equipment needed to develop basic listening skills; to train teachers to manage the program; to ensure that the program was being operated as designed by supervising and assisting teachers as required; and to provide a "special environment" for the reading centers, which generally meant a somewhat more comfortable room than the regular classroom. This was particularly important in Jacox, where the reading center was air-conditioned and the regular classrooms were not. Teachers and other instructional personnel were to be drawn from the Norfolk schools and were to remain in Norfolk's employ. The State Department of Education would have final say in the resolution of all disputes.

Students were to be selected on the basis of "grade level deficiencies" (degree unspecified) in reading as determined by the pre-test administered by the independent evaluator. Thus, student scores on reading tests were supposed to be only an initial screening device; however, although a few students scored at grade level or higher on the pre-test, none was dropped from the program. There was no specification for the provision of control groups.

An approximate distribution of students among grades was also prescribed, which was not satisfied for St. Helena (see Table 6), as there were more treatment

[24] Not to be confused with the contractor payment.

students in the fourth grade than in the sixth. The actual distribution at Jacox was more in line with the specification, partly because the turnover was so high in the ninth grade that many more ninth grade students participated in the program than remained throughout the full period of instruction. The rationale behind the specified distribution was not clarified; the specified distribution for Jacox, however, was considerably different from that first set forth in the ETS draft, viz., 100, 15, and 10 students from the seventh, eighth, and ninth grades, respectively.

Formulas for payment to LRA are presented in the contract and its amendment. The payment schedule was geared to results on standardized tests and on tests of "interim performance objectives." On the basis of standardized pre- and post-tests:

- LRA would be paid $63.75 for each student who gained 1.7 grade levels and received the full term of instruction. If less than 150 hours of instruction was made available by Norfolk, the required grade level gain (but not payment) would be reduced proportionately. This provision was not in the ETS draft. Since actual hours available turned out to be about 130, this reduced the guaranteed grade level gain to about 1.5.
- LRA would be paid (or docked) $4.00 for each student who gained more (or less) than the guarantee and for each 0.1 grade level above (or below) the guarantee. However, in no event would LRA receive more than $15,937.50 for the 250 students (i.e., $63.75 per student) on the basis of the standardized tests.
- If a student left the program early and had no post-test score, LRA would be paid a base amount equal to the amount paid for the average student completing the program (which would take account of penalty bonuses), but the amount would be reduced proportionately to the number of instructional periods actually completed. Thus, LRA would be penalized (or rewarded) for this student if average full-term student achievement were below (or above) the guarantee. This proviso is considerably different from that in the ETS draft, which would have paid LRA for this student a flat rate of $37.50 per grade level gained by the average full-term student, reduced proportionately to the number of instructional periods actually completed, but with no bonus payments or penalties if the average gain were above or below the guarantee.
- Specific provisions for students who entered late were to be similar to the foregoing; however, a special provision was made in the amendment that late-entering students who had not been pre-tested would be given the average pre-test score of their peers.
- Provisions for payment for students with IQs below 75 were also added to the final contract, and had been omitted from the ETS draft.

On the basis of tests of interim performance objectives:

- LRA would be paid $21.25 for each student who correctly answered 85 percent of the test items (later reduced to 80 percent, for ease of calcuation—see amendment, Appendix C, continued) on each interim objective prescribed for the student by LRA. There was no contractual specification of the minimum (or maximum) number of objectives that a child would be assigned. LRA would receive $2.00 more (or less) for every test item a student answered correctly beyond (or less than) those for the objectives originally prescribed for him, but in no event would LRA be paid more than $5,312.50 for the 250 students (i.e., $21.25 per student) on this basis. Since the evaluator actually tested only a sample of the performance objectives for each student, as suggested in the amendment, it is possible that rewards or penalties were never meted out on the basis of the interim tests.
- Provisions for payment for late-entering or early-leaving students were similar to those for payment based on standardized tests. As before, the ETS preliminary draft omitted the reward/penalty feature for these students.

Interim payments:

- In any event, LRA was to be paid $17,000 in six equal installments to defray the costs of the program as it progressed. This was 80 percent of the maximum amount LRA could expect to receive on the combined basis of the interim tests and standardized tests.

The signing of the contract was delayed for two months by legal difficulties concerning the assumption of liability for students in the program. The ETS draft made Norfolk City Schools liable for student safety, which is not permitted under Virginia law. To resolve the problem, Norfolk City Schools finally paid LRA about $475 to obtain liability insurance.

The contract describes testing procedures for determination of contractor payment (validation). The major features of the validation plan were that the independent evaluator would select, administer, and score one of at least three standardized achievement tests per grade to each child in order to avoid compromise of the test, and that interim tests of performance objectives would provide part of the basis for payment. The choice of tests was later to become a matter of contention because of probable mismatches between the content of the tests and of the instruction. Originally, ETS had proposed that LRA witness pre- and post-test conditions, a provision that was replaced by one stating that Norfolk schools would certify the conditions

of the testing in writing. This was also to become a matter of contention at the completion of the program.

Exact conformance to the specifications for construction and administration of the interim tests would have required a very large effort by the evaluator, because each student might need to be tested on a set of objectives different from those for any other student. To avoid this difficulty, the sampling procedure already noted in the amendment was devised. Another major revision occurred when the interim tests were all administered within a few weeks, rather than at relatively equally spaced intervals. This change in schedule probably came about because LRA was slow in supplying the test items and the University of Virginia could not cope with the logistics of the more widely spaced testing once the test items had been agreed upon.

Sections 4.06 and 4.07, which are added to the ETS draft, afforded LRA valuable protection against the eventualities that there would not be enough time or students upon which to base payment. That such protection is needed has been demonstrated by both the Norfolk program and other performance contracts.

A clause that has turned out to be quite significant is the provision that on the completion of the program the Norfolk City Schools may buy outright the LRA materials, diagnostic tests, and other elements of the instructional program in whatever quantities they want, but that this option must be exercised by *July 15, 1971*. Since that date was well before the results of the evaluation report would be made public, this meant that publicity would not influence their decision.

VI. THE PROGRAM IN OPERATION

CHOICE OF PROGRAM AND COMPARISON SCHOOLS

Once Norfolk had been chosen as a division for performance contracting, the school division administration was asked to select the Title I schools that would participate. They originally chose two junior high schools, Jacox and Ruffner, and two elementary schools, St. Helena and Bowling Park, with high percentages of Title I students. Jacox and St. Helena were to provide the treatment groups, and Ruffner and Bowling Park the control groups. However, the redistricting left Bowling Park with only the first through fourth grades and decreased the number of Title I students at Ruffner; therefore, Young Park was chosen as the control school for St. Helena and Campostella for Jacox. Young Park was among the elementary schools that had not been desegregated; also, Campostella was not desegregated because bussing students back and forth across the river was considered too difficult.

CHOICE OF PROGRAM AND COMPARISON STUDENTS [25]

In order to qualify for the treatment group, a student had to score below his nominal grade placement on the most recently available district reading test score

[25] The methods of selection of students for the "control" groups vitiated the applicability of the term "control" to these groups, in the sense of experimental design. Therefore, these groups will be referred to as "comparison" groups hereafter.

and preferably would have an IQ of at least 75, again based on the most recently available score. For students who had participated in the regular testing program, therefore, the criteria were met on the basis of scores provided by the tests listed in Table 5.

As noted previously, however, almost all of the children in the fourth, fifth, and sixth grades at St. Helena were in the treatment group from the outset of the program. By March, in order to replace a few students who had been dropped because of excessive absences,[26] all of the St. Helena students in the upper elementary grades who were reading below grade level were in the program, whether or not their IQs were below 75.

At the beginning of the program, 125 students were selected for the treatment group at Jacox. Of these, 60 had been in the remedial reading program the preceding year and 65 more were chosen on the basis of the stated criteria. A student's disciplinary record was not considered in any way in assigning students to the program. The absence rate at Jacox almost guaranteed a high rate of turnover; in fact, of the original group, about 70 percent completed the program.

Although a few Jacox students were designated as "reserve" (i.e., to be drawn on if replacements were needed) and were pre-tested, these were quickly exhausted. Since the University of Virginia could not handle the logistics of unpredictable pre-testing, only 14 percent of the late entrants received a pre-test.

The "control" group at Campostella Junior High was selected at random from the seventh grade (only) by choosing every tenth seventh-grader. Because the criteria for selection were so different from those for the treatment students, this group is referred to as the *comparison* group, rather than the *control* group. Campostella's seventh grade contains 14 classes, with a total of 430 students. Thirty-eight students were pretested for the comparison. The comparison group at Young Park was also chosen at random, but from the fourth, fifth, and sixth grades. One hundred and four students were pre-tested for the comparison.

Since it seemed to us that the students in the remedial reading programs at Young Park and Campostella might be more like the students in the treatment groups at St. Helena and Jacox, we gathered data on these students' IQs and division reading scores.

Table 6 displays the number of program students by grade, their mean IQs, and reading scores (expressed as number of grade levels above or below nominal), and their role in the program. Also shown are data describing some of the students in

[26] Excessive absence was defined to be any absence of 10 consecutive days or more, or any absence of 15 days total.

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Table 5

TEST SCORES USED TO FILL CRITERIA FOR STUDENT SELECTION

Grade Level	District Reading Test	Grade Administered	IQ Test	Grade Administered
4	Stanford Achievement Test Form W, Primary II	3	Kuhlmann-Anderson 7th Edition, Level B	2
5	Science Research Associates, SRA Achievement Form C, Blue Level	4	Lorge-Thorndike Form B, Level 3	4
6	Stanford Achievement Test Form W, Intermediate I	5	Lorge-Thorndike Form B, Level 3	4
7	Stanford Achievement Test Form W, Intermediate I	5	Lorge-Thorndike Form B, Level 3	4
8	Iowa Silent Reading Test Form DM	7	California Test of Mental Maturity 1963 S-Form, Level 3	7
9	Differential Aptitude Tests Form L	8	California Test of Mental Maturity 1963 S-Form, Level 3	7

Table 6

CHARACTERISTICS OF STUDENTS PARTICIPATING IN PERFORMANCE CONTRACTING OR REMEDIAL READING PROGRAMS

	School Name/Program Role								
	St. Helena/Treatment			Young Park/Comparison			Young Park/Reading		
	Sex	Reading	IQ	Sex	Reading	IQ	Sex	Reading	IQ
Grade	Male/ Female	Number[a]/ Deviation[b]/ Test[c]	Number[a]/ Mean[d]/ Test[c]	Male/ Female	Number[a]/ Deviation[b]/ Test[c]	Number[a]/ Mean[d]/ Test[e]	Male/ Female	Number[a]/ Deviation[b]/ Test[c]	Number[a]/ Mean[d]/ Test[e]
4	29/20	48/-1.9/DRT	(f)	15/21	(f)	(f)	(f)	(f)	(f)
5	16/23	39/-1.9/SAT	37/80/LT	19/16	13/-1.6/SAT	28/86/LT	10/11	9/-2.0/SAT	17/78/LT
6	19/22	(f)	(f)	15/19	(f)	(f)	(f)	(f)	(f)
	Jacox/Treatment			Campostella/Comparison			Campostella/Reading		
7	37/15	39/-3.3/SAT	35/82/LT	23/15	31/-3/SAT	34/85/LT	4/3	6/-3/IOWA	(f)
8	41/32	47/-2.3/IOWA?	70/80/CTMM?	0/0	NA[g]	NA[g]	29/6	35/-4.1/IOWA	(f)
9	21/15	25/-4.0/SAT	18/78/CTMM	0/0	NA[g]	NA[g]	5/1	5/-4.1/SAT	(f)

[a] Number of students for which data available.

[b] Mean deviation from nominal grade placement.

[c] Latest division reading test for which scores obtained. Code:
DRT, 4th grade = Stanford Diagnostic Reading Test, Form W, Level I
SAT, 5th grade = Stanford Achievement Test, Form W, Intermediate Battery
SAT, 7th grade = Stanford Achievement Test, Form W, Advanced Battery
SAT, 9th grade = Stanford Achievement Test, Form W, Advanced Battery
IOWA, 7th grade = Iowa Silent Reading Test, Form DM, Elementary Level
IOWA, 8th grade = Iowa Silent Reading Test, Form DM, Elementary Level

[d] Mean score.

[e] Latest division IQ test for which scores obtained. Code:
LT, 5th grade = Lorge-Thorndike, Form B, Level 3
LT, 7th grade = Lorge-Thorndike, Form B, Level 3
CTMM, 9th grade = California Test of Mental Maturity, 1963 S-Form, Level 3

[f] Data not gathered.

[g] NA = not applicable.

the remedial reading programs, along with their mean IQs and mean reading score deviations. The table suggests that the treatment students in St. Helena and Jacox were, in fact, quite deficient in reading and these deficiencies increased with age. A number of treatment students had IQs below 75 (25 percent for the fifth grade and 28 percent for the seventh and ninth grades). The high ratios of males to females, which obtained consistently at the junior-high level, including those chosen at random, may not be the result of chance alone. They may reflect a propensity of females in this population to leave school early, but we have no data to refute or substantiate this point.

A comparison of Table 6 with Table 4 indicates that the treatment groups had lower IQ scores than the general student population in the treatment schools—considerably lower in the case of the junior-high students. It is more difficult to compare the scores on the division reading tests. The SAT is not at all comparable to the SRA because of the 3.1 grade equivalent "floor" on the SRA. Although the seventh- and ninth-grade reading scores appear considerably lower for the treatment group than for the Jacox population as a whole, again the question of comparability between the SAT and the Iowa Silent makes it difficult to draw a firm conclusion. Nine students in the ninth-grade treatment group had an average score in the seventh grade on the Iowa Silent of −2.3 below seventh-grade level; the figure for the Jacox seventh grade as a whole was −1.6.

Table 7 displays some two-way comparisons of differences in IQ scores for students participating in the performance contracting program (treatment and comparison groups) and students in the regular remedial reading program. The t-test was applied in an attempt to determine whether the several groups were significantly different on the basis of IQ. The results suggest that the fifth-grade students in the Young Park remedial reading program were better matched to the fifth-graders in the St. Helena treatment group than were the students in the Young Park comparison group, whose IQs were significantly different at the 0.10 level. Interestingly enough, the Young Park remedial and comparison groups differed in IQ at the 0.05 level.

Since, in order to keep the demands of data collection within manageable bounds, we had decided to emphasize grades five, seven, and nine in our work, and because of the preponderance of students in the eighth grade in the Campostella remedial reading program, there were too few students in the seventh and ninth grade remedial program to make comparisons similar to those above. The comparison of IQs between the seventh-grade students in the Jacox treatment group and

Table 7

TWO-WAY COMPARISONS OF DIFFERENCES IN IQ SCORES OF STUDENTS PARTICIPATING IN PERFORMANCE CONTRACTING OR REMEDIAL READING PROGRAMS

Group	Significance Level[a]			
	5th Treatment	5th Comparison	5th Remedial	7th Comparison
5th Treatment	x	.10	.50	x
5th Comparison	x	x	.05	x
7th Treatment	x	x	x	.40

[a] t-tests of significance.

Campostella comparison group supports the belief that these groups matched each other fairly well. The lack of comparison groups at the eighth and ninth grades was a serious omission, however.

TEACHER SELECTION AND TRAINING

The project coordinator for Norfolk City Schools, Daniel Avent, proposed the names of four secondary teachers and six elementary teachers from whom LRA would choose one secondary teacher and one elementary teacher for the treatment groups. No guidelines for selection were given except that each teacher should want to be involved in the program and should be flexible. Stern made the final selection after he had interviewed each nominee. He based his choice primarily on the criterion of the nominee's responses to "What if?" questions. Both of the Norfolk teachers demonstrated a high degree of competence in putting the program to work in their classrooms.

Teachers attended a week's pre-service training given by Cohen in Farmville, Prince Edward County. The first day was spent in enlisting the teachers' cooperation by discussing the good points of the program. Next, they spent a day and a half

working through a flow chart of the system and materials. The remainder of the time was spent in teaching actual students. Cohen believed that some of this orientation could have been dispensed with; in addition, the teachers felt that the workshop could have been more helpful. The problem was probably one of emphasis—too much time was spent on conceptualizing and not enough on the details of testing, diagnosis, prescription, and management that the teachers had to face. Possibly LRA had not worked out all the details at this early point in the program.

LRA had three field supervisors for the program, indigenous to the areas in which they worked. Their major job was to enlist and maintain the support of the school principals and to insure that the program was implemented properly in the classroom. Initially, they worked full time, and for the first three weeks they tried to visit each classroom every day. Apparently, both teachers felt that they had received sufficient assistance and guidance from LRA, although one did concede that follow-up conferences with LRA would have been useful as the program progressed.

THE PROGRAM IN THE CLASSROOM

Classes at both the elementary and junior-high levels contained about 25 students from a mixture of the grades included in the treatment. Each teacher taught five classes a day and had no other duties beyond those attendant on the program. They estimated, however, that they spent between one and two hours a day outside of class working on things related to the program, such as filling out reports, preparing materials, and the like. During class each teacher was assisted by a full-time aide who helped keep materials in order and equipment working, assisted students having difficulties, and performed clerical duties. One of the teachers had special sessions on Saturday for students to make up missed periods or to do extra work; the other teacher allowed students to attend extra sessions during the day as they wished. The former seems to have been the more effective, as the 42 fifth-grade students each attended an average of 3.2 extra or make-up sessions whereas very few of the junior-high students attended extra sessions.

To participate, students at the junior-high level had to forgo their elective. At the elementary level students in each grade were placed in three groups, each of which left the regular class at a different time, making it difficult for the classroom teacher to plan her day.

The original plan for the course of study was to use a set of 300 objectives

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prepared for nonreaders or poor readers at the junior-high level by Cohen in his Mobilization for Youth program in New York City. Cohen's program included much material to help the ghetto child develop the listening and speaking vocabulary he would need before he could develop a reading and writing vocabulary. This need is much greater than the layman appreciates. A diagnostic test would be designed from the materials to be used, in order to determine at what level each student should be working. The levels were preprimary to third grade, third to fifth, and fifth to twelfth. This test was not available at the beginning of the program, so the teachers began work from their knowledge of each student's grade level in reading from the scores on the division reading tests.

Toward the end of the first month, the diagnostic tests began to arrive. Of the original 300 objectives, 240 remained after 60 that were deemed irrelevant had been deleted. Objectives were grouped in three areas: word attack, comprehension, and study skills. The objectives in word attack followed a fairly well-defined sequence, but students could skip about in those for study skills and comprehension. The easier objectives were developed in the most detail, which is reasonable, as most students did not progress very far into the comprehension objectives.

At the same time, stress was laid on reading books, and a wide variety of books was supplied to encourage students to read as much and as freely as they wished. Some of the books were black-oriented. The junior-high teacher felt that the free-reading, book conferences, and rewards for reading books (to be described in more detail shortly) were very effective in holding the students' interest until the end of the program.

The theory behind Cohen's approach is that the most efficient instruction is that which is most closely tailored to each student's needs. In order for the teacher to attain this end with a class of 25 students, special materials are needed that have been designed so that students can work with them independently. The teacher cannot personally attend to each student's needs. She also must have ways to check student progress, keep student folders in order, and keep materials and equipment in order so that students can get materials and put them away as they need them. Each student has a card on which the teacher has entered abbreviated designations of the materials he should be working on and crosses them off as he finishes them. The teacher works only with students who are having trouble and also encourages students to teach each other. Students move about the room as necessary so that they will not sit idly while waiting for the teacher to get them what they need. Generally, they sit and work where they please.

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This approach appeared to function very effectively in Norfolk. Students did work individually, got their materials as they needed them, developed a sense of responsibility for their own work, and helped each other. In contrast to the regular classrooms, most of the students seemed to be working most of the time. Usually about a fifth to a third of the students were moving around the room while the rest were working. The teachers said that it took about a month to train the students to work in this fashion.

As with a number of other programs that use an individualized approach, LRA's instructional techniques included tangible rewards to students for certain behaviors —in this instance, for finishing objectives and for self-motivated reading. Books and certificates were used as rewards, with their effectiveness depending to a large extent on the individual student. Students received a free book when they had read their first five, and a free one thereafter for every ten books read, on the theory that if the things it is desirable for the student to value are used as rewards, he will, in fact, come to value them. For some students, of course, this tactic will not work and rewards closer to their existing value structure will have to be used at first. Students were uninterested in certificates for completion of objectives; this feature needed more work, according to one teacher. Apparently, however, the free books were successful with a large number of the students in Norfolk. By the fifth month of the program, 23 books had been given away at the elementary level and 250 at the junior-high level.

LRA's program was rich in materials and equipment, paralleling in variety the materials used to stock the remedial reading classrooms. At the elementary level the most frequently used of these materials were, in order of use: the Michigan Language Program (to teach listening skills via tape recorder), the Barnell Loft workbooks, the Random House books, Skilpacers and cassettes, SRA kits, and the Scott-Foresman First Talking Alphabet. The phonics *Write and See* books, published by New Century, were supplied to each child. The students also kept the tape players for practicing listening skills in constant use and enjoyed them greatly.

At the junior-high level, the Michigan Language Program, which develops listening skills, was useful for only a few of the students, as most of them were above that level. Even so, most of the students got only about halfway through the comprehension objectives. The last months of the program were spent primarily in reading and discussing books, rather than working on specific skills.

The elementary reading center was a regular classroom furnished with two teachers' desks, about six tables, a long table with ten carrels that the principal had

made, two tables containing miscellaneous books for free reading, six small tables containing study materials, wall displays of student progress, a four-drawer file, and a six-foot storage cabinet. The junior-high reading center was similar, but was in a separate trailer (about 24 by 18 feet) outside of the main school building. The trailer also contained a carpet and a room air-conditioner, which was not needed at the elementary center because the entire building was air-conditioned.

Both of the teachers believed that the program was not optimally designed, and that fewer classes with more students per class would be better. Given the proper facilities and equipment, the teachers estimated they could manage 35 to 40 students per class. However, the aide would still be needed.

OUTSIDE INTEREST IN THE PROGRAM

If performance contracting is truly to be a change agent, the approaches of specific programs should spread to other similar student populations. For this to occur, teachers, principals, and administrators not directly involved with the program need to become aware of it and to foster its dissemination.

There are two facets to the question of the attitude of such outsiders toward the program. One has to do with the amount of effort that has been expended to promote interest and a favorable attitude, and the other has to do with outsiders' direct observations of the effects of the program on students assigned to it. With regard to this first issue, LRA did not have an extensive plan for publicizing the program, involving parents in program activities, or other positive steps for enlisting support. Therefore, whatever steps were taken were largely contingent on the people involved at the level of the school division and below. For example, at the outset of the program one building principal had a faculty meeting to explain the program and to ask teachers to take an hour during the day to observe it; at that same time, in another school none of the teachers but the reading center teacher knew anything about the program, and in the comparison schools not even the principals knew anything about it, although one vice-principal had read a newspaper article describing it. Later in the program, the reading center teachers had succeeded in eliciting considerable interest on the part of other teachers in the schools, including formal in-service training sessions on Saturdays, informal faculty meetings to explain the program, and encouragement of drop-in visits. The Program Director for Norfolk,

Daniel Avent, had set up a schedule of regular visits for teachers (primarily reading teachers) throughout the division, from neighboring divisions, from Old Dominion University, from the State Department of Education, and so on. By this time, all of the reading teachers in Norfolk had heard of the program and almost all had visited one of the reading centers or were scheduled to do so.

On the other hand, relatively little was done by the school division to stimulate parent interest and participation. Because parental permission is needed to take students out of electives in the seventh grade, a form letter was sent to each parent requesting this permission. After a rash of absences in the winter, notices were sent out to parents to try to get better attendance in the program. Some parents came to school in response; others never received the notices because their children would not take them home. One teacher had a parent conference two weeks after the start of the program and another in March. Aside from these episodes, most parents did not express interest in the program directly. An attempt to conduct a telephone survey of parent opinion toward the end of the program was frustrated by the small percentage of telephone numbers provided on the student records.

The project director believed, and we concurred, that it was important to maintain records of visitors in order to have as much information as possible that would cast light on the interest and involvement generated by the program. Avent devised a form on which the program teachers would maintain a record of visits to the Center;[27] this form also had to be filled out and submitted first to Avent by anyone planning to visit the Center. When the Centers were visited in the spring, however, we discovered that only one of the Center teachers was actually keeping the log. The other simply assumed that Avent's records would be sufficient, which, of course, means that the data are probably in error. Some people may have requested permission to visit and then did not do so; others (the author included) may have visited without filling out a form.

In addition, the principal of one of the treatment schools initially intended to maintain a log of events pertinent to the program; Rand felt that this would be an extremely valuable source of information. Unfortunately, the press of work and events forced him to abandon this endeavor.

Several teachers who had students in the performance contracting program were interviewed to determine the extent of their knowledge of the program and their opinions of it. All had positive things to say about it, although a few noted some

[27] Rand was asked to construct a form that would have gathered more detailed information; apparently this was too cumbersome, as the form provided was not used.

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deficiencies and dangers. In general, they believed their students had a better attitude toward reading, as evidenced by increased use of the library, greater willingness to undertake assignments that involved reading, better listening and word-attack skills, and eagerness to attend the reading center. On the negative side, at the elementary level, teachers doubted that students were really reading for meaning and that comprehension was being underemphasized. None of the teachers noticed any particular change in the students' attitudes toward school in general. And at least one teacher expressed unease at the thought that people other than professional teachers might assume major classroom responsibilities.

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VII. EVALUATION

VALIDATION

Because the primary responsibility of the Bureau of Research at the University of Virginia was to certify student achievement, we have chosen to term their services *validation,* rather than *evaluation,* which has a much broader connotation. Although the evaluation contract contained provisions for widening the scope of the work, by and large the importance of validation overshadowed other activities, with resultant cursory treatment in some instances.

Achievement Test Selection

We do not know on what basis the standardized achievement tests were selected by the Bureau of Research. In most instances, the levels of the tests were quite appropriate to the average attainment of the target population, but the content of the tests poorly matched the content of the instruction, particularly at the elementary level. For example, although many students at that level spent a great deal of time developing word-attack skills, the word-attack section of the Metropolitan Achievement Test (MAT), which is given orally, was omitted, probably because of difficulties in training test administrators and because none of the other tests used

had a comparable section. Presumably, a different form of each test was administered pre and post. To our knowledge, the tests were administered as shown in Table 8.

The most striking feature of Table 8 is the large variety of tests and levels of tests administered. Because the Norfolk schools have not been given the details of the pre-test administration, it is also not possible to know whether all students even had pre- and post-tests from the same publisher. The variety of tests makes it very difficult to compare the achievement of individual students or groups of students because each test measures somewhat different skills, may have been normed on a different student population, and is constructed differently. For example, tests have different numbers of questions and different numbers of choices per question. Because the correlation of scores on one level of a test with those on another is less than perfect, the reliability of a "gain score" obtained in this way is in doubt.

Achievement Test Administration

By and large, tests were administered at least as carefully as achievement tests are usually administered for norming purposes, based on Rand observation of the pre-testing. Although there were some instances of poor administration, inadequate facilities, and poor arrangements for getting students into the test rooms, these were probably no better or worse than usual for either the pre- or post-tests. Student gains were poorest in St. Helena, where test administration was handled with the most care;[28] this suggests that inept test administration is not to blame for all the poor results.

Based on preliminary data, and assuming that all post-tests matched the pre-test codes (except for changes in form) provided to the Norfolk schools in February or March, the number of students who took post-tests and pre-tests that matched in publisher and level is shown in the table below. It is clear that the reliability of gain scores is very low for many of the tests. In addition, the size of "valid" samples (where "valid" is taken to mean administration of matching tests) is much too small in some instances (particularly at the junior-high level) to support statistical significance.

[28] According to reports by the test administrators.

Table 8

TEST ADMINISTRATIONS BY THE BUREAU OF RESEARCH,
UNIVERSITY OF VIRGINIA

Grade/ Administration	Test Name[a]	Forms	Level
4/both	California Achievement	A&B	2
4/both	Metropolitan Achievement	G	Primary II
4/both	Science Research Associates	D	Battery 2-4
4/post	Science Research Associates	D?	Blue of Multilevel Battery 4-9
5/both	California Achievement	A&B	2
5/post	California Achievement	B	3
5/both	Metropolitan Achievement	G	Primary II
5/both?	Metropolitan Achievement	G	Elementary
5/both	Iowa Test of Basic Skills	4	3 (multilevel)
6/pre	California Achievement	A&B	3
6/both	Metropolitan Achievement	G	Primary II
6/both?	Metropolitan Achievement	G	Elementary
6/both	Iowa Test of Basic Skills	4	4
6/post	Iowa Test of Basic Skills	4	5
7/both	California Achievement	A&B	3
7/both	Metropolitan Achievement	G	Intermediate
7/both	Iowa Test of Basic Skills	4	5
8/both	California Achievement	A&B	4
8/both	Metropolitan Achievement	G	Intermediate
8/both	Iowa Test of Basic Skills	4	6
9/both	California Achievement	A&B	4
9/both	Metropolitan Achievement	G	Intermediate
9/both	Iowa Test of Basic Skills	4	7

[a]In each case the vocabulary and comprehension sections of the test were administered.

Grade	Test	Number of Students Matched/Total Tested
5	CAT	13/13
5	MAT, Primary II	14/14
5	ITBS	14/15
7	CAT	20/20
7	MAT	7/15
7	ITBS	9/15
9	CAT	8/8
9	MAT	2/9
9	ITBS	5/18

Results of Achievement Testing

The actual results of the achievement testing have not been made available to Norfolk. However, on the basis of the data that have been released, (again assuming that all pre-tests matched post-test codes except for changes in level or form), the program appears to have resulted in the average gains[29] shown in the table below. (Only those students who we are certain took both a pre- and a post-test are included.) The table suggests that there are consistent differences among the tests for this population and instructional program. The ITBS shows the largest gains, the CAT next, and the MAT the smallest. This may be due to a very poor match between the MAT and the content of the instructional program, a problem that has arisen elsewhere for programs using Sullivan reading materials, according to Dr. Richard Harsch of the Educational Testing Service.

Grade	Test	Number of Students/ Average Gain in Grade Equivalent
5	CAT	11/0.2
5	MAT	15/−0.2
5	ITBS	11/0.5
7	CAT	11/0.4
7	MAT	6/0.5
7	ITBS	8/0.6
9	CAT	6/0.25
9	MAT	2/0.05
9	ITBS	1/1.1

[29] Although there is little reason to believe that these figures are grossly in error, the gains on specific tests may be attributable to the fact that the precise specification of the pre-tests is not known.

We cannot be sanguine about the apparently better results of the ITBS, however, because many of the scores on this test were in the "chance range," that is, the grade equivalent corresponded to a raw score that could have been obtained on the average by guessing. Nearly half of the pre-test scores for the seventh and ninth grades were of this nature; this had dropped to about a fifth of the scores on the post-test. The MAT in the seventh grade also suffered this defect. Three out of the eight pre-test scores were in the chance range, as were three out of ten of the post-test scores.[30] Although scores in the chance range appeared on the other tests or in other grades, the above are the most serious examples. These data further increase our disquiet as to the reliability of the data on the basis of which LRA will be paid.

There were enough data on the fifth-grade students in the St. Helena treatment group to permit investigation of whether the test used affected the students' gain scores (again, assuming our decipherment of the pre-test codes was correct). Figures 4, 5, and 6 show scatter plots of gain scores versus IQ (Lorge-Thorndike) for the MAT, CAT and ITBS. The plots appear strikingly different but although all coefficients of correlation were negative, the correlations were all too weak to be significant. (The figures were derived from a set of data slightly different from that used to compute the mean gains above. The overall results are essentially the same, however.)

Table 9 displays the results of two-way comparisons of the students in the three test groups. The t-test was used to compare IQs and gain scores. The table shows that all three groups were about the same in IQ and that the gain scores were not significantly different except for those on the MAT and ITBS. These latter were significantly different at the 0.001 level! Thus, the MAT and ITBS may have been measuring different skills, a difference that may have been accentuated by the instructional program.

One problem—that of student absences, which plagues all testing programs, particularly for Title I students—worked to destroy what vestiges of reliability there might have been in the evaluation data, which used pre- and post-test averages for students absent at the time of testing and for students who entered the program late or left it early.[31] This practice is hardly defensible, because such students may be among the better learners in the program (or the poorer, depending on selection criteria). For example, the results for the ninth-grade students were quite different

[30] One of the test administrators was astonished at the speed with which some children completed the test. Some took half the time allotted; were they marking their papers at random?

[31] Very few of the late entrants (or early leavers) had pre- (or post-) tests. What tests were given were administered by guidance counselors.

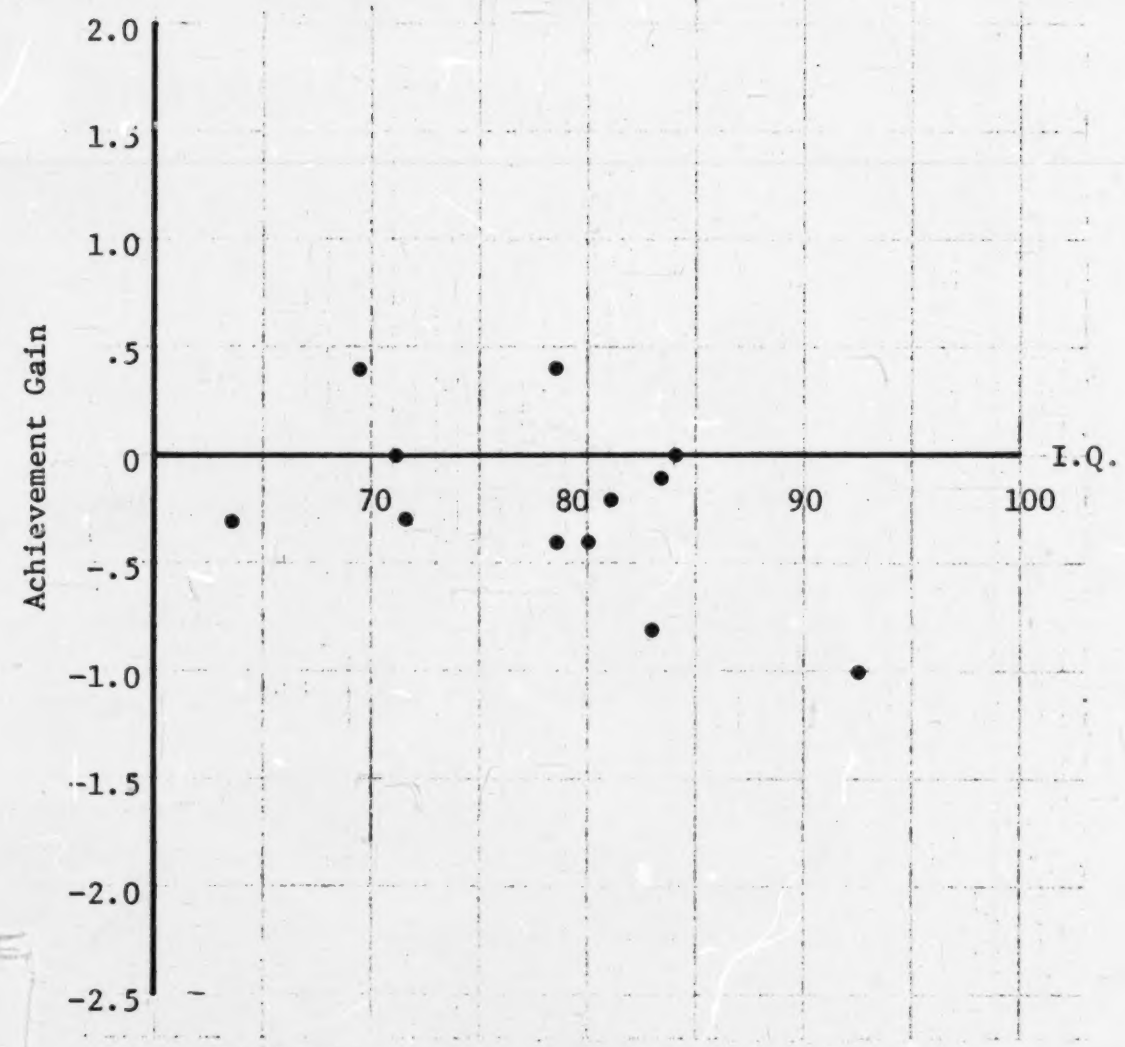

Fig. 4—Scatter plot of gain scores on the Metropolitan Achievement Test versus IQ (Lorge-Thorndike)

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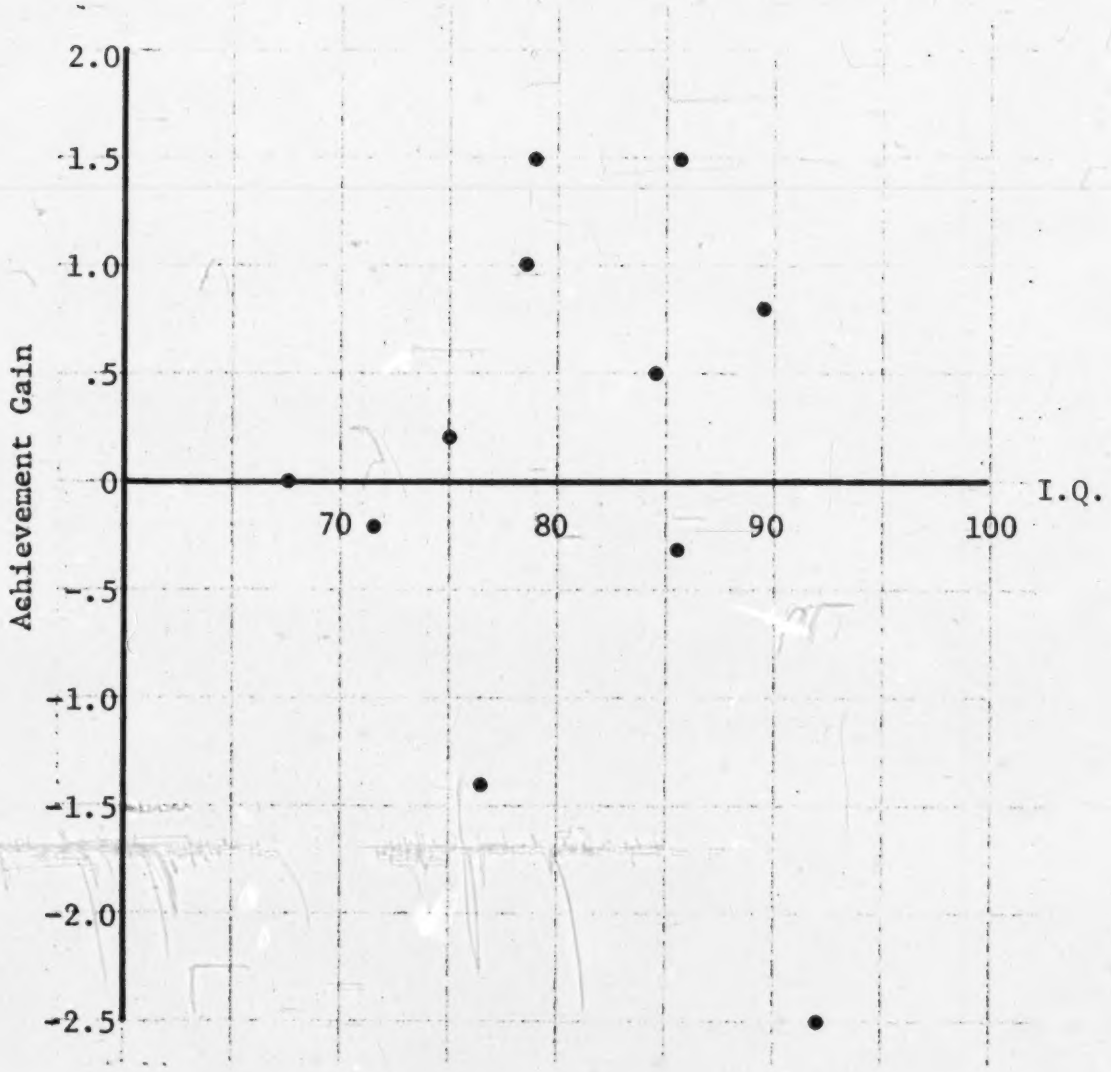

Fig. 5—Scatter plot of gain scores on the California Achievement Test versus IQ (Lorge-Thorndike)

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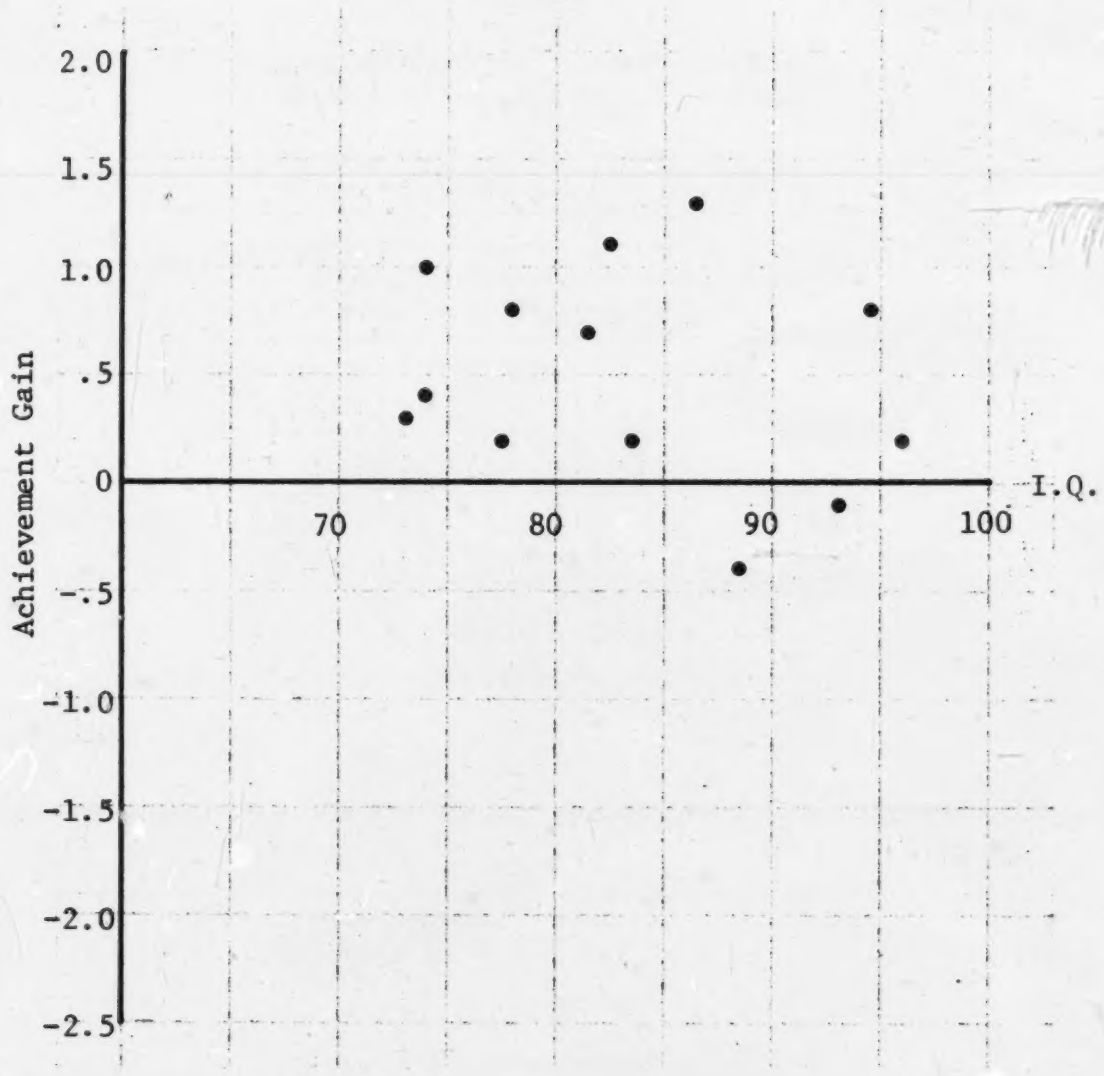

Fig. 6—Scatter plot of gain scores on the Iowa Test of Basic Skills versus IQ (Lorge-Thorndike)

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Table 9

TWO-WAY COMPARISONS OF STUDENTS TAKING THREE DIFFERENT STANDARDIZED TESTS

Test	Test and Significance Level[a]		
	MAT	CAT	ITBS
A. Comparison of IQs			
MAT	x	N.S.[b]	0.20
CAT	x	x	0.40
B. Comparison of Gain Scores			
MAT	x	N.S.	0.001
CAT	x	x	N.S.

[a] t-test of significance.

[b] N.S. = not significant at any level.

from those shown on p. 45 when pre- and post-test averages were used. These data are contrasted below:

Test	Number of Students/Average Gain in Grade Equivalent	
	Students with Both Pre- and Post-test Scores	All Students
CAT	6/0.25	8/1.2
MAT	2/0.05	11/−0.2
ITBS	1/1.1	17/1.2

Interim Tests of Performance Objectives

The original instigation to include interim tests of performance objectives as part of the basis for payment came from ETS. This was a rash decision in light of the facts that:

- Few such tests have been developed (LRA constructed the test items after the start of the program);
- Their reliability is unknown (a few items were ambiguous);
- Their validity (i.e., their correlation with the tests of more general skills, which predict future academic attainment) is unknown;
- Efficient techniques for administering such tests have not been worked out.

All of these facts caused difficulty. When the first interim test came due in November, it became clear that the requirement as stated in the contract could not be met. Theoretically, since instruction was individualized, each student would be responsible for a different set (at least in part) of ten to twenty objectives. In order to measure within the accuracy required by the stipulation that the student demonstrate a mastery of 85 percent of the items relevant to a given objective, twenty test items would be needed for each objective. Even if all students had the same twenty objectives, this would require a test containing 400 items. Therefore, Woodbury, leader of the evaluation team, Blaschke, president of ETS, and Avent met to resolve the problem.

First, they decided to reduce the requirement for passing from 85 to 80 percent so that only five test items would be needed per objective—that is, a student would need at least four out of five right answers rather than seventeen out of twenty to pass. Next, LRA was requested to provide a set of test items that corresponded to the program objectives. These arrived in late February or early March, at least three months behind schedule. Then it was decided to use only a sample of the students and a sample of the objectives assigned to these students to reduce the testing load.

The Bureau of Research hired and trained two graduate students from the University of Virginia Extension to administer the tests. The Bureau also obtained a list of students and their objectives from the reading teachers, and the testers constructed a matrix of students and objectives in order to group students who had the most objectives in common for specific testing sessions. At most nine students were tested at one time; each test took no longer than an hour for each student and was not a speed test. Students responded by marking with a grease pencil on acetate sheets laid over the answer page. Tests were graded on a pass-fail basis. No answer key was provided by the contractor.

The tests were administered on the schedule shown in the table below. The results support the impression of teachers and other observers that the students knew what the program was designed to teach (although lack of a true pre-test leaves us in doubt as to whether the program was responsible for their mastery).

School	Date	Students Tested	Total Time Required (hours)	Average Number Objectives Per Student	Percent of Objectives Mastered
Jacox	March 24	34	43	6	90
	April 16	16	23	15	84
	May 3	13	9	13	92
	May 26	10	9	4	92
St. He'ena	March 24	42	38	6	91
	April 16	29	14	9	82
	May 3	17	7	7	91
	May 26	11	9	9	76

Attitude Measure

The Bureau of Research developed an "Affective Reading Index," to be administered to treatment and comparison students in an attempt to determine whether the students' attitudes had been affected by the program. Almost all of the questions asked the student to compare his reading class this year with the one he had last year. Since many of the treatment students were not in a reading class last year and most of the comparison students were not even in one this year, one wonders how they were expected to answer such questions.

OTHER MEASURES

Rand gathered data on an aspect of student behavior that could be partly related to the students' attitude toward the program, i.e., attendance. The attendance of students in the treatment groups at the reading centers was compared with their attendance at school, in general, to determine whether the reading center was more (or less) attractive to them than their regular classes. The data on reading center attendance, kept by reading center teachers, are considered to be quite accurate. (We have included data on makeup sessions only to the extent that they offset missed sessions; sessions beyond that are not included.) The data on attendance at school in general (taken from the central files of the division) are probably less accurate (i.e., the absence rate is understated) because many students may answer

the roll in the morning and then cut school later in the day. This is a common practice in inner-city schools. A school year of 180 days was assumed.

Data on attendance of students in the remedial reading classes, taken from the reading teachers' records, were similarly compared with data on their general attendance. Some aspects of the results, displayed in Table 10, are striking. First, the low rate of attendance in contract reading centers of Jacox ninth-graders and of all remedial reading students in Campostella makes one wonder how these students could have learned anything from these classes. Second, absence rates rise sharply with age. Third, the absence rates in the remedial and contract reading programs are significantly different from those in school in general only for the ninth grade in Jacox (contract) and the seventh grade in Campostella (remedial). In these instances the difference was significant at the .05 level (Jacox) and the .001 level (Campostella).

Rand also made an attempt to determine whether the skills that students were acquiring in the reading centers would carry over into their regular classroom work —that is, whether they would become more proficient at handling assignments that

Table 10

ABSENCE RATES FOR STUDENTS IN TREATMENT GROUPS OR IN REMEDIAL READING CLASSES

School	Program Type	Grade	Absence Rate (%)		Number of Students
			Reading Class	School in General[a]	
St. Helena	Contract	5	7	7	42
Young Park	Remedial	5	8	7	21
Jacox	Contract	7	11	10	47
Jacox	Contract	9	23	15	36
Campostella	Remedial	7	30	23	10
Campostella	Remedial	8	21	19	38
Campostella	Remedial	9	18	16	6

[a]Assumes a school year of 180 days. No information on late-entering or early-leaving students included.

might reasonably be given them by the classroom teacher. At the beginning of the program, classroom teachers in the fifth grades at both Young Park and St. Helena were consulted to determine what subject matter would be taught during the year and what would be reasonable ways to determine whether students had mastered this subject matter. (Difficulties of scheduling made a similar approach at the junior-high level infeasible.) On this basis, three assignments—one in arithmetic, one in English, and one in social studies—were drawn up and approved by all five classroom teachers. These, along with the written instructions to the teachers for administering the assignments, are attached as Appendix D.

The assignments were administered in December 1970, and the very same assignments were administered in June 1971. The student responses were gathered, names and other identifying items removed, and a code number assigned to each paper. Because only 16 students turned in both pre- and post-assignments at St. Helena, no elaborate analysis of the results was undertaken. Rather, a teacher from the Los Angeles area who had had extensive experience at the elementary level was asked to rank a scrambled set of all of the papers for each subject from 0 (poorest) to 10 (best) by placing them in eleven groups. She was allowed to use any criteria she wished to form the basis of the ranking and to put as many papers into each level as she wished. Her comments are also contained in Appendix D.

Then each student's initial rank was subtracted from his final rank and the averages were computed for each school. The results are shown in the table below. Statistical tests show that Young Park students scored appreciably higher in arithmetic at the end of the year; their gain was was significant at the 0.01 level. This bears out other studies of black students' ability to cope with different subject matter areas. None of the other gains were significant, and there was no significant difference between the schools.

School	Number of Students	Average Net Change in Rank (final minus initial)		
		Social Studies	English	Arithmetic
Young Park	34	0.47	−0.06	1.38
St. Helena	16	0.75	−0.62	0.94

COST COMPARISON

Information on payments to contractors for instructional services, evaluation, and management support are of historical interest, but they are not particularly helpful in answering two major questions: How does the performance contracting program compare with other reading programs in terms of their requirements for resources? What would be the cost of implementing the performance contracting program as part of the regular Norfolk curriculum?

To answer such questions, two steps must be taken. The first is to describe the programs to be compared in terms of their resource requirements, as shown in Tables 11 and 12. The remedial reading program was chosen because it is closest in intent to LRA's program. The second step is to compute the cost of each program using the *same* unit cost for items common to each. Then the programs can be compared on a common ground, which is the most useful for planning.

The program and resource information in Tables 11 and 12 was gathered by direct observation, from the Norfolk Title I budget, and from lists of materials and equipment. The weakest area of the description is the itemizing of materials, as there was no way to know which of the materials were used most heavily and which were not used at all. This is not a serious fault, however, as the cost of materials is small compared with personnel costs, which dominate the operating costs of the programs.

Next, the "Comparable Replication Costs," shown in Table 13, were computed by S. A. Haggart, of Rand, who provided the structure of the resource and cost analysis. The comparable replication costs (rather than historical program costs) are given so that the planner may judge which of two programs that have already gone through the development phase would be the less expensive. Therefore, comparable replication costs do not include the cost of research and development, which is a sunk cost[32] for both programs. They also do not include the cost of classrooms (another sunk cost) or of the program director, who is assumed to be funded out of general administrative support, even though the management he provides is essential to the success of innovative programs. The diagnostic services at the diagnostic center are also essential to the success of the program and are included as a major supporting service.

The operational cost/student is considerably lower for the LRA program than for the regular Title I remedial reading program because of the higher student/

[32] A sunk cost is one which has already been incurred. It can neither be recouped nor incurred again.

Table 11

LRA READING PROGRAM AND RESOURCE INFORMATION

Characteristics of students	Title I
Program scope	
Number of students	250
Class time	50 minutes
Class size	25
Number of sections	5
Facilities	
Space	Regular classrooms
Students/classroom/day	125
Utilization	87%
Furnishings	Air conditioning, pleasant environment; small, modern (partitions, file cabinets, storage cabinets, etc., loose tables, chairs)
Staffing	
Certified teachers	1 per classroom
Special teachers	0
Paraprofessionals	1 per classroom
Other personnel	1 program director
Equipment	6 cassette players ($25), 6 tape recorders ($150), earphones ($50)
Materials	Sound filmstrip sets; cassettes; workbooks and miscellaneous supplies, books, kits
Pre-service training	1 week
In-service training	3 days
Other support	Evaluation--$10 per child
Incentives	300 paperback books given as awards

Table 12

REMEDIAL READING PROGRAM AND RESOURCE INFORMATION

Characteristics of students	Title I
Program scope	
Number of students	1000 (14 elementary centers, 60 students per center; 3 junior high centers, 50 students per center
Class time	50 minutes
Class size	10
Number of sections	6
Facilities	
Space	1/2 regular classroom size
Students/classroom/day	60
Utilization	80%
Furnishings	File cabinet, loose tables, chairs
Staffing	
Certified teachers	1 per classroom
Special teachers	0
Paraprofessionals	0
Other personnel	1 program director
Equipment	Language Master
Materials	Books, filmstrips, games, kits
Other support	Diagnostic center: $35,000 (3 diagnosticians, 1 aide, 1 clerk, consumables)
Incentives	None

Table 13

COMPARABLE REPLICATION COSTS FOR PERFORMANCE CONTRACTED PROGRAMS

(Cost in dollars)

Acquisition Cost	*LRA/Reading*	*Remedial Reading*
Facilities (remodel, furnish)		
Total program cost	10,000	--
(Cost/instructional area)	(5,000)	--
Equipment		
Total program cost	5,000	13,600
(Cost/instructional area)	(2,500)	(800)
Materials		
Total program cost	7,600	17,000
(Cost per instructional area)	(3,800)	(1,000)
Pre-service Training	4,000	--
Total acquisition cost	26,600	30,600
Operational Cost		
Salaries (including fringe benefits)		
Teachers ($10,000/yr)	20,000	170,000
Paraprofessionals ($4,000/yr)	8,000	--
Materials		
Program-related (10%)	760	1,700
Consumables (student)	2,500	10,000
Equipment		
Replacement	500	1,360
Maintenance	500	1,360
In-service Training	2,400	--
Other Support		
Program evaluation	2,500	--
Diagnostic services, remote	--	29,400
Consultants ($100/day)	800	--
Total operational cost	37,960	213,820
Operational Cost/Student	152	214
Minimum Student Module[a]	125	60

[a]Smallest number of students that can be included without increasing the operational cost/student.

teacher ratio. If the LRA program can be restructured so that it is more effective in teaching reading, its lower cost may make it very attractive for Norfolk.

TURNKEY

The Norfolk City Schools are already well on the way to implementing the LRA system as a replacement for remedial reading programs in the school curriculum, but *not* under performance contract. Ten reading centers, five in elementary schools (including the one in St. Helena) and one each in Jacox, Ruffner, Willard, Campostella, and Blair junior high schools, will be equipped to handle 125 to 150 students each for a total of 1250 students. The materials, diagnostic tests, and so on, needed to equip these centers have been bought. All reading teachers at the elementary level and 14 reading teachers at the junior-high level participated in a two-week summer workshop to learn to use the program. The reading teachers from the performance contracting program conducted the workshop for 42 participants in all. The participants received $3 an hour for their work. There will be some changes in the balance among various materials used in the program, but its basic structure will be as LRA designed it.

VIII. CONCLUSIONS

As usually happens in complex enterprises of this kind, it is not possible to make a clear-cut judgment about the value of the performance contracting program. Certainly, everyone associated with the program was bitterly disappointed by the poor results of the achievement testing. This outcome might have been partly due to unreliablity of the gain scores—a problem that has been explored at length in several recent papers.[33] We believe, however, that this factor was less important than the probability of a poor match between the content of the tests and the content of the instructional program, particularly at the elementary level. Since the elementary students concentrated almost exclusively on word-attack skills, their reading comprehension skills could even have been adversely affected, as the standardized test results seemed to imply. The criterion-referenced tests showed that the students *had* mastered most of the objectives assigned them (although it is unclear whether the program was responsible for this).

It was also clear from classroom observation and teacher interviews that students were learning more than basic skills. They learned to be responsible for their own work and to have a more positive attitude toward reading. These changes

[33] Lee J. Cronbach and Lita Furby, "How We Should Measure 'Change'—Or Should We?," *Psychological Bulletin*, Vol. 74, No. 1, 1970, pp. 68-80; Stephen P. Klein, "The Uses and Limitations of Standardized Tests in Meeting the Demands for Accountability," *Evaluation Comment*, Vol. 2, No. 4, January 1971; Robert E. Stake, "Testing Hazards in Performance Contracting," *Phi Delta Kappan*, June 1971, pp. 583-588.

seemed to be specific to the reading program and reading per se, however; neither teachers nor principals felt that any improvements in attitudes toward school in general were attributable to the reading program. In addition, the analysis of scores on the classroom assignments in social studies, English, and math failed to support the theory that improved reading ability would promote improvement in other academic areas.

It will be difficult to determine whether students in the treatment groups did or did not improve more in reading than their peers, primarily because of the lack of a true control group. In a few instances, the small sample sizes resulting from the use of a variety of tests also make comparisons difficult. An inadequate evaluation plan therefore hampered the evaluation, as did the requirement to maintain test security.

The need to maintain test security also kept the evaluator from supplying the teachers with any interim data on student performance, and thus thwarted one of the major uses of evaluation—program improvement. This is especially important for a program undergoing development, as this one was; an interactive evaluation might even have caught the imbalance of program content at the elementary level in time to correct it.

Perhaps the major difficulty was that the evaluator faced too many and too varied tasks, spread out over too large a geographic area. The establishment of on-site evaluation teams could have mitigated this problem, and scrupulous honesty and objectivity could have been assured at a modest expense by having an independent audit of the validation.

At this point, we should discuss the difficulties of gathering data in the public schools. (Norfolk is no worse in this regard than any other division.) Lack of readily accessible, complete data forces an evaluator to spend most of his time grubbing in files in principals' offices, teachers' record books, and so on. Even data that are fed into the central computer are not kept in a central file, but are lost once they have been entered on this or that record. The result is a great waste of time that could be spent interviewing teachers, talking with parents, observing classes, and the like. Furthermore, what data are gathered are likely to be incomplete and often wrong.

When special data are to be gathered as part of an evaluation, it is false economy to assign the task to classroom teachers, building principals, guidance counselors, or the like, who are likely to have other extra duties generated by the program and whose primary responsibility is not to gather data. Only the most conscientious person will faithfully provide complete records in such circumstances.

The evaluator would be much wiser to put someone on the scene, either periodically or throughout the program, whose primary duty would be to collect the data needed. This would mean more expense, of course, but could be well worth it.

A number of problems had to do with the fact that the program was established by contract. The most obvious was the difficulty in providing legal arrangements for insurance covering students in the program. This delayed the signing of the contract and was finally resolved for a small cost in dollars but a large cost in people's time and attention, including the involvement of three law firms. A contract is very binding in more than the legal sense; it makes it difficult to adjust the program as needed. Renegotiations were required, for example, when the interim testing had to be revised. In short, a contract can be a hindrance when a program is first being implemented, unless it is written to accommodate change.

The program cost more than it would have if it had been administered like the usual compensatory programs. Additional money was needed to recoup the costs of program development and to cover administrative expenses, travel, and the like. On top of this were the ETS contract for management support (probably on the order of $15,000, if Texarkana is any guide) and the University of Virginia contract for $7,400 (Norfolk's portion of the $74,000). Neither of these expenses would be needed in a regular program, of course.

Because of the larger number of students that can be accommodated in LRA's system, the comparable replication cost of the program is less than the cost of the regular remedial reading programs. If the problems in content balance can be solved, effectiveness may be sufficient to warrant abandoning the remedial programs as they now exist.

The performance contract brought talent from outside the school system to bear on a serious educational problem, and focused attention on the program. A considerable amount of time and money had already gone into the development of the LRA system—money that came from publishers and others in the education industry. The fruits of this investment were made available to Norfolk. Additionally, outsiders working under a guarantee of reward for good performance seemed to be able to operate more freely than could have those with established roles in the school environment. For a number of reasons, then, the more radical departures from customary practice were adopted and are being extended in Norfolk's target schools.

In sum, it seems likely that the performance contracting program in Norfolk in 1970-71 will result in a considerably changed reading program in target schools, a program that is at least as effective as the current remedial reading program under

Title I. Two steps are now being taken that may correct the deficiencies of the 1970-71 program: restructuring the content at the elementary level for a better balance between word-attack skills and reading comprehension, and the use of a more interactive evaluation that will contribute directly to the improvement of the program as it develops.

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Appendix A

PROPOSAL SUBMITTED BY LEARNING RESEARCH ASSOCIATES

Proposal Submitted to the

Virginia State Department of Education
and the
School Divisions of the Counties of Prince Edward, Lunenburg, Mecklenburg, Wise, Dickenson and Buchanan,
and the
City of Norfolk
FOR
"GUARANTEED STUDENT ACHIEVEMENT IN READING THROUGH OPERATION OF ACCELERATED ACHIEVEMENT CENTERS"

August 13, 1970

Submitted by
Learning Research Associates
1501 Broadway
New York, New York 10036
Phone: 212-594-6649

I. STATEMENT OF THE PROBLEM

The seven school divisions of Prince Edward County, Lunenburg County, Mecklenburg County, Wise County, Dickenson County, Buchanan County and Norfolk City in cooperation with the Virginia State Department of Education (hereafter referred to as the Virginia districts) through its request for proposal for "Guaranteed Student Achievement in Reading Through Operation of Accelerated Achievement Centers" seek to achieve a number of key objectives. Among the most significant of these are:

- to maximize student achievement, as indicated by performance in reading.
- to increase the retention power of the schools.
- to increase the cost-effectiveness of instruction in reading in a manner which can be subsequently adopted in the schools on a turnkey basis.

Learning Research Associates, as the prime contractor, seeks to assist the Virginia districts in achievement of these objectives through the program described in this proposal. Urban Ed., Inc. will sub-contract and provide assistance and support in specific aspects of the instructional program in reading and communication.

A. Understanding of the Situation of the Seven School Districts in Virginia

Though variations exist among the seven participating school districts there are a number of characteristics which they have in common.

With the exception of Norfolk, all the school districts are rural and have generally declining population expectations. Prince Edward County may be an exception since there appears to be some evidence that a population increase could occur. The average family income and the average adult education level in all of the target populations involved in this pilot project are below that of the State. Children in the target population may be characterized as "disadvantaged" and consequently the schools serving them have been and will most likely continue to be eligible for funding under ESEA Title I. Three of the counties - Prince Edward, Lunenburg and Mecklenburg - in attempting to provide for the education of all their children have experienced additional complications related to the problems of desegregation.

On the average a smaller percentage of high school graduates go on for additional training as compared with the State and the Nation. Most of the districts have relatively poor retention power with higher than average drop out rates.

A significant proportion of students in the target population

fail to achieve at satisfactory levels in reading and the related language arts skills.

In light of these conditions the seven Virginia school districts are actively seeking an approach that offers a high degree of likelihood of success in the reduction or elimination of the school problems described. A performance contract with incentives and penalties provides this kind of opportunity. Such a contract represents one means of attracting the talents, skills and resources of the private sector to the aid of education and then holding them accountable for results in the projects they undertake.

In addition the Virginia districts have imposed the requirement of adaptability to the turnkey process, i.e., provision for the preparation of local personnel and conditions to facilitate the assumption of the program operation in the years succeeding its introduction at a high level of cost effectiveness.

This represents a much needed concept in the field of education and offers the prospect of dramatic change in schools and their impact on pupils in a relatively short period of time.

The results of this project will have significant impact on the future educational planning of the seven school districts and the Virginia State Department of Education particularly as it relates to (1) overcoming academic deficits, (2) increasing reten-

tion power of the schools, (3) increasing the cost effectiveness of the instructional program, (4) teacher training, qualifications and role, (5) selection and use of learning materials, (6) design of physical facilities and (7) the nature and design of learning experiences.

B. History of Similar Programs

Urban Ed., Inc., the proposed sub-contractor for the reading component of this proposal for the operation of Rapid Learning Centers, has successfully conducted eight reading projects for underachievers over the past three years as indicated in Figure E following page 50. Five of these projects are particularly relevant to the target school population specified by the Virginia school districts: Yeshiva University NDEA Institutes, grades 4-9; South Bronx School - grades 1 and 2, Bronx, New York; P.S. 148, New York, N. Y. grades 5-8, P.S. 1, New York, N. Y. grade 6 and P.S. 130, New York, N. Y. grades 3-6. Additionally, Miss Diane Smith, a full-time staff member of Learning Research Associates, directed an intensive demonstration and teacher-training project in Manchester, Connecticut to increase reading skills of junior and senior high school students who were retarded two or more years in reading.

Finally, Mr. Lee D. Brown, Director of Learning Research Associates, Inc., participated in two adult literacy projects that successfully utilized special intensive approaches. The first of these was the PACE

project in Cleveland, Ohio directed by Dr. Robert Binswanger, currently at the Harvard Graduate School of Education; the second was the Adult Literacy Project of the Milwaukee County Department of Welfare directed by Mr. Anthony J. Sinsky.

C. Proposal Design to Meet the Conditions as Specified in the Request for Proposal

This proposal is designed to meet the general and specific provisions of the RFP for the project entitled "Guaranteed Student Achievement In Reading Through Operation of Accelerated Achievement Centers."

The project is designed to operate throughout the 1970-1971 school year for a period of 150 days with each student participating in reading instruction for the equivalent of 150 hours. The payment for the services of the contractor will fall within the constraints specified in the RFP.

The High Intensity Learning Centers in which instruction will take place is designed to provide for a significantly larger number of students than anticipated in this project. Thus, in a six hour school day as many as 180 students can use the center without a significant increase in cost because the materials are designed to be non-consumable, have a life expectancy of 3 to 5 years and are geared to an individualized approach. There is little difference in cost in providing for twenty or thirty students. The only added cost would

be for the additional time of a teacher who might work with students during after-school or evening hours. Therefore, operating costs could be significantly decreased with an increase in the number of students participating.

The learning system proposed is designed to be adopted on a turnkey basis at the beginning of the second year of the contract. This is contingent upon the assumption that professional personnel recruited from the Virginia districts and trained by LRA and Urban Ed.,Inc. continue to be employed in the High Intensity Learning Centers. Learning Research Associates is prepared to guarantee at least two alternative levels of cost-effectiveness and the attendant conditions within one month after completion of this project for introduction of the learning system into counterpart schools at counterpart grade levels. In addition LRA is prepared to guarantee a cost-effectiveness level of at least 50% upon incorporation and adoption by the participating school districts.

If LRA is chosen as the successful bidder a detailed survey will be made immediately with the cooperation of the appropriate Virginia district personnel to determine the nature and extent of all resources - human and material - that are available for use in this project. Should any financial savings be realized as the result of this search they will be passed on to the school district or diverted to provide increased effectiveness of the project.

LRA will be willing to negotiate an incentive contract after validation of the first year achievement results and costs to insure that the learning systems can be utilized during the second and subsequent year of the project at the most cost-effective level possible. LRA is prepared to negotiate a performance incentive contract for the 1971-1972 school year turnkey operations.

Learning Research Associates and its sub-contractor, Urban Ed., Inc. have extensive successful experience working with school personnel at all levels as well as with community representatives, including individuals and groups. Therefore, the contractor(s) possesses considerable sensitivity and awareness of the kinds of approaches that are required to assure a high degree of acceptance of innovation by various constituencies with a minimum of adverse reaction. Personnel of the contractor will work closely and cooperatively throughout the period of the contract with school personnel and other groups and individuals to assure a smooth transition in the installation and acceptance of learning centers. It is our recommendation that to the extent possible the Virginia districts, within the existing time constraints, plan on meetings with the public, including parent groups, to help them understand the merits of and gain support for this unique approach. LRA would welcome the opportunity to participate and contribute to these meetings.

LRA is willing to conduct limited program operations in the late

afternoon or early evenings at agreed upon sites. These operations would be contingent upon the need for these services among the target or expanded population and would be reimbursable to the contractor on the same basis as in the standard compensation plan.

In addition, LRA and UEI, hereafter referred to as the Contractors, agree to the following general provisions of the RFP:

- all testing (exclusive of that intended for diagnostic purposes) to be conducted or supervised by each participating school division or by an independent evaluator engaged for this project. LRA has had extensive experience in developing and administering performance tests, and in having clients administer performance tests developed by LRA. Accordingly, so long as the directions for administration are adhered to and so certified by the project manager or his designee, LRA is willing to have all supervision of testing used as the basis of payment under the jurisdiction of the local school district.
- report actual start-up and operating costs to each Superintendent in accordance with the stipulated forms and procedures.
- conduct operational programs within the constraints of, and in accordance with, the intent and conditions of the evaluation design.

- tailor the learning system to meet individual needs of the target populations.

- utilize the capabilities and resources of each of the seven districts.

- accept the fixed time and cost constraints imposed by the participating school divisions and the performance criterion of maximizing student learning as the general basis of contractor payment. LRA and Urban Ed., Inc. personnel have a long history of meeting time and budget constraints while achieving specified performance objectives. Since the fall of 1969, LRA has guaranteed to specific school systems the achievement of performance objectives in connection with the sale of its learning materials, particularly in the area of reading.

- being willing to work with all seven districts.

- being willing to purchase a performance bond equal to the projected risk of the project as determined by the participating districts.

D. Brief Overview of the Proposed Approach

The approach described is appropriate for the grade levels from 1 through 9 involved in this project. High Intensity Learning Centers will be established at each of the eighteen schools among the seven school districts. Approximately twenty-five students will be scheduled into these centers on a daily basis for a period of one hour. At the outset of the project each student will be diagnosed to determine his particular needs and behavioral competencies. Appropriate instruments have been developed and/or selected for this purpose. Subsequently each student has learning activities and materials prescribed for his involvement. These have been selected to provide maximum responsiveness to the student's need in terms of skill, content, level and rate of learning. The materials are for the most part self directing and self correcting. Most are carefully sequenced so that students can move on independently, once diagnosis and prescription have been completed, with a minimum of teacher direction. The teacher subsequently focuses on continuing diagnosis and prescription and assists students who are experiencing difficulty in progressing.

The concept underlying this approach is derived from careful research and subsequent application in the classroom and is based on maximizing the time spent by students in active participation in learning, i.e., in prescribed learning activities. By this method

the percentage of clock time spent in prescribed learning activities is increased from the average classroom rate of 35% to a High Intensity Learning Center rate of 80 to 85%.

Motivation for continuing attendance in the HILC and involvement in the learning activities is enhanced by providing immediate and direct feedback to the student on his responses so that he experiences reinforcement or "pay off". The reinforcement system is translated into charts, graphs or the opportunity to spend more time in the center or in activities of the students' choice. Additionally, the centers are designed to be attractive and inviting in appearance and highly functional for learning to take place. Centers will have area carpets, be air conditioned, and have some comfortable living room type furniture. One of the other unique features will be bins containing books suitable for a wide range of interests and reading levels.

The "system" of high intensity learning is designed so that after the first year of operation it can be successfully "turnkeyed" into the regular pattern of the Virginia schools at a low cost which is well below that of the initial contract costs.

The total approach described is geared to the attainment of specified performance objectives and growth on standardized achievement tests. Because of the wide range of entry level skills possessed by the target population it is difficult to offer specific guarantees

in terms of performance objectives before assessing the specific populations. However, we can describe expected achievement levels a. reflected in standardized test scores based on our previous experience. For the target population the mean achievement gain will be a growth of one year during the period of one year of instruction. A bank of hierarchically sequenced performance objectives in reading will be available from which will be selected those that are appropriate for participating students depending upon their entry level skills. The agreed upon objectives will be determined as a result of a review with each project manager and/or his designated representative.

Additional details are presented in the section on the Technical Approach with further supportive materials in the Appendix.

E. The Rationale of the Consortium

The consortium undertaking this project consists of the following groups with the responsibilities indicated:

Learning Research Associates is the prime contractor with overall responsibility for project management and administration.

Urban Ed.,Inc. is the sub-contractor with direct responsibility for the teacher training and supervision of the high intensity learning centers for reading.

At least two important factors led to the formation of the present consortium.

1. A high degree of congruence of philosophy and practice exists between the consortium members. The major elements of agreement include recognition of the need for

- individualization of instruction
- integration of achievement motivation as part of the academic training of the student in school
- application of project management techniques and cost-effectiveness analysis
- a "systematic" approach to the instructional process
- significant modification in school practices to result in an improved educational experience for all students

2. The availability of highly talented and experienced personnel in the areas required for the success of the Virginia project.

Supporting documents in the section on Corporate Background and Experience, including personnel resumes, will attest to these factors.

II. TECHNICAL APPROACH

The planned approach for the project is described in nine separate though interrelated sections (A) Background and Rationale for High Intensity Learning Centers, (B) Diagnosis in the High

Intensity Learning Centers, (C) Learning Activities in the Centers, (D) Personnel-Selection, Staffing and Training, (E) Operation of the Centers, (F) Objectives, Guarantees and Cost Implications, (G) Facilities, (H) Learning Materials, (I) Results of Experience with High Intensity Learning Centers.

The proposed approach is based upon several fundamental assumptions. These include:

- problems of motivation should be treated as an integral part of an individual student's involvement in an academic discipline such as reading
- individualized instruction is an effective means of maximizing selected growth opportunities for the individual student
- performance objectives and criterion referenced test items are essential to proper curriculum planning and evaluation
- a non-labor intensive approach with emphasis on appropriate materials, technology and systems and a changing role for the teacher is essential to increasing the effectiveness of certain kinds of learning
- performance contracting with the turnkey component can result in dramatic changes in school practices

within relatively short periods of time

The overall aim of the proposed approach is to effectively and efficiently meet the objectives described in the request for proposal.

A. Background and Rationale for High Intensity Learning Centers

If the retarded reader is non-white, urban or rural and poor, his retardation is considered a concomitant of being disadvantaged. Being "disadvantaged" means many things among which are: absence of a father in the home, speaking with a "different" dialect, having a deficient conceptual vocabulary, having a "non-verbal" communications style, suffering from low self-esteem, and living in an environment that does not provide stimulation for learning experiences.

If the retarded reader is white, suburban and middle class, his retardation is often labeled "dyslexia," or is explained as the result of perceptual dysfunction.

Black or white, the retarded reader is analyzed, prodded, observed, tested, exposed to instruction, re-exposed to "remedial" instruction, "diagnosed," written up and, if he is one in 100,000, referred to a university clinic.

Psychiatrists, psychologist, learning disability experts, pediatricians, neurologists, guidance counselors, reading specialists

and principals supply us with the following diagnostic labels to explain the retarded reader:

Disadvantaged	Perceptually handicapped or impaired
Dyslexia	Learning disability
Emotionally disturbed	Cross dominant
Mixed dominant	Hyperactive
Lazy	Hypoactive
Hyperkinetic	Passive agressive
Lack of impulse control	He's not ready
Distractibility	Delayed maturation
Minimal brain dysfunction	
Minimally neurologically impaired	

The list of etiologies and labels may in fact describe conditions that exist in individuals or groups who are retarded readers, but the accuracy of the labels and etiological conditions is irrelevant to the treatment of most cases of reading retardation.

1. Research indicates that most reading retardation stems from a psychoeducational disease we have labeled dyspedagogia -- poor teaching.

2. Even in cases of neurological impairment or perceptual dysfunction, the etiology of a behavioral condition that is not within the realm of medical pathology is usually irrelevant to its treatment.

In addition to documenting this point of view, this description presents the specific techniques for remediating dyspedagogia using High Intensity Learning Centers.

Etiology of the reading retardation (dyspedagogia) is irrelevant to its treatment.

Etiology is crucial to behavioral research that is meant to pay off some day in preventative programs. To prevent future reading retardation, we must isolate the etiological variables that cause that condition. To solve the reading problems that exist currently in children, etiology is irrelevant.

Two other points must be clarified before considering the data in support of the irrelevance of etiology. First, the specific conditions described by diagnostic labels and etiologies are often accurate. The irrelevance of etiology does not deny the existence of psychosocial, psychophysical, psychodynamic, psycholinguistic, economic and ecological variables implied in diagnostic labels and etiological descriptions. Second, many of these variables are important to consider and to treat for reasons other than literacy. The point is, that in most treatments of reading retardation, these variables are irrelevant.

According to Mary Austin's study,* American reading instruction in general is weak. More dramatic, perhaps, than Austin's observations were the classroom achievement level patterns that emerged from the Cooperative Reading Research projects conducted in the mid 1960's by the U. S. Office of Education. One of the best of these studies,

*Mary Austin et al., The First R, New York, Macmillan, 1963.

Albert Harris'** CRAFT project, demonstrates the existence of dyspedagogia.

Harris found what most other Cooperative Reading Research studies found and what most researchers predicted he would find: When we compare various published beginning reading programs matching the classrooms both with each program and across each program, the difference between one classroom's achievement and another's using the same program is greater than classroom achievement levels across programs. Most researchers interpreted this as: "The teacher variable is more potent than the 'method' variable." This, of course, is an over-simplification. The published material is a program, not a method. What each teacher does with a published program is "the method." In other words, the research does indicate that methodology makes a difference in achievement. The question that needed to be asked was not: Which beginning reading program gets better results? Instead, the question should have been: What is it that more successful teachers do that less successful teachers do not do? The researchable problem should have been: What is the pedagogy in the more successful classrooms?

As an experienced researcher, Harris anticipated the teacher variable or what is defined as pedagogy. He built into the CRAFT

**Albert Harris et al., A Continuation of the Craft Project: Comparing Approaches with Disadvantaged Urban Negro Children in Primary Grades, U.S.O.E. #6-10-063, Division of Teacher Education, City University of New York, 1968.

project attempts to isolate variables that could identify more successful teachers. One earlier study indicated two variables which appear to be most significant:

1. More successful teachers (as defined by higher reading achievement levels of pupils) tended to differentiate (individualize) reading instruction more than less successful teachers.

2. Classes with higher reading achievement tended to spend more time in reading instruction than classes with lower reading achievement.

Call these variables differentiated instruction and time. The problem with most classroom observation schemes is that they concentrate on the wrong phenomenon -- the teacher. When they look at the pupil, they do so either in interaction with the teacher or in an unsystematic, "clinical" observation. Tannenbaum and Cohen, on the other hand, developed a different classroom analysis scheme. Instead of observing the teacher, they analyzed pupil behaviors in reading classes. They analyzed systematically what reading skills and subskills each child was learning, at what level he was operating, what channel of communications input he was using, through what communications channel he was responding, the types of media delivering the stimuli, the learning strategy utilized by the learner and the

pupil grouping employed. This technique allowed the observer to analyze a class and to define not only what the class was doing on all eight dimensions listed in the Taxonomy of Instructional Treatments (Figure A). This observation scheme revealed that more successful classes had a higher "participation-in-learning ratio" (P ratio) than less successful classes. This study is important for two reasons: First, it focused on the learner rather than on the teacher, demonstrating that learner performance, not teacher performance, is the more accurate measure of classroom efficiency. Second, it defined what differentiation and more time meant in other studies that had similar findings.

The Tannenbaum-Cohen technique indicated why individualizing instruction and increasing time caused reading achievement to increase. The factors appear to be efficiency and intensity. Given a period of time in which pupils are programmed to read, the more successful classes are ones in which 85 to 90% of the clock time is spent by the pupils working in prescribed learning-to-read activities. The best way to achieve this intensity is to adjust what a child learns to each individual's needs and to allow each child to learn that skill or content at his level and at his own rate. This is called "individualizing" or "differentiating" instruction. The degree to which the teacher does not differentiate can be partially compensated for by increasing the amount of clock hours devoted to

Figure A

TAXONOMY OF INSTRUCTIONAL TREATMENTS

(Developed for Project #OEG-1-6-062528-2092)

by Abraham J. Tannenbaum and S. Alan Cohen

	I. BASIC SKILLS	II, BASIC SUBSKILL	III, SEQUENTIAL LEVEL
CONTENT	1. Word Attack	1. Consonants 2. Vowels 3. Word Structure 4. Sight Vocabulary 5. Word Meaning 6. Context Inference 7. Symbolic Discrimination	1. Easy/Initial 2. Average/Intermed. 3. Difficult/ Sophisticated 4. Ungradable
	2. Comprehension	1. Details-Main Ideas 2. Sequence-Relations 3. Follow Directions 4. Sentence Structure 5. Paragraph Structure 6. Recreational Reading	
	3. Study Skills	1. Dictionary 2. Maps and Graphs 3. References & Texts	

	IV. COMMUNICATION INPUT	V. COMMUNICATION OUTPUT
CHANNEL OF COMMUNICATION	1. Auditory 2. Visual 3. Kinesthetic 4. Auditory/Visual 5. Visual/Kinesthetic 6. Auditory/Kinesthetic 7. Visual/Audit/Kinesth.	0. Non-observable 1. Oral 2. Motoric 3. Oral-Motoric

	VI. INSTRUCTIONAL MEDIA	VII. INSTRUCTIONAL STRATEGY	VIII. INSTRUCTIONAL GROUPING
STRATEGY	1. Visual-Projector 2. Auditory-Recorder 3. Skill Drill Text 4. Games-Role Playing 5. Books	1. Play-Chance 2. Play-Competition 3. Play-Puzzle 4. Test-Response 5. Exploration 6. Programmed Response 7. Creative Problem Solving	1. Teacher/Large Group 2. Teacher/Small Group 3. Tchr/Indiv. Stud/Tutor 4. Student/Small Group 5. Student/Large Group 6. Student/Student Team 7. Indiv. Self Instruc.

reading instruction. In other words, three hours daily of inefficient reading instruction may yield a little better result than one hour daily of inefficient reading instruction. Most traditional teacher-directed classrooms operate, according to this research, at 30 to 45% P ratios. By increasing time in these inefficient classrooms, achievement increases slightly. But if we increase both efficiency and time, achievement jumps. That is precisely what happens in High Intensity Learning Centers.

Using the Tannenbaum-Cohen observation scheme results in the conclusion that most classrooms operate at shockingly low efficiency. Using the eight taxonomy dimensions (Figure A), this observation scheme shows little real instruction occurring in most classrooms. "Real instruction" is systematic, sequential management of prescribed stimuli and contingencies. Most classroom instruction is simply exposure. The assumption, for example, that all children are certainly taught letters and words does not stand up under careful behavioral analysis. The fact is that most children certainly do not receive intensive instruction in letters and words. They are merely exposed to letters and words, and a pedagogical universe exists between simple exposure and systematic contingency management which is the key to learning.

Dyspedagogia is therefore, what most children get in school. And for most children, dyspedagogia is good enough, for they read

in spite of it. Some children, however, do have unique combinations of negative psychosocial, psychodynamic, psychophysical, psycholinguistic variables that require something more than dyspedagogia. Their problems are not in these unique combinations, but in the dyspedagogia. For the Harris CRAFT study, amongst others, shows us that in the presence of intensive negative etiological factors, a slight increase in the intensity of instruction eliminates a measurable amount of the effect of these etiological variables at the beginning reading stage. To assume that just because a child has been exposed to a course called "remedial reading" or "special help," he has received intensive instruction is an error.

Harris' populations were disadvantaged urban children who manifest what we call in middle class children the "learning disorder" syndrome. The "disadvantaged" syndrome is the learning disability syndrome at its most intensive. In poor children we often call it "deprivation." In the CRAFT research, teachers were closely trained and supervised, resulting not in optimal pedagogy, but in slightly better-than-average pedagogy. In third grade, these disadvantaged children in the CRAFT study were reading on grade level -- a rare phenomenon in these particular ghetto schools. The crucial factor was pedagogy. Stated in reverse, dyspedagogia ("low intensity" pedagogy) causes most reading retardation. Stated positively in spite of intensive negative psychosocial, psychodynamic, psychophysical,

psycholinguistic factors, a little better pedagogy ("high intensity" pedagogy) makes a big difference in achievement.

B. Diagnosis in the High Intensity Learning Centers

Students will report daily to High Intensity Learning Centers for work in reading and communications.

The first step in intensive instruction, illustrated in the area of communications, is prescriptive diagnosis-distinguishable from classical diagnosis by the former's utility. Classical diagnosis assigns numbers (third grade level) or etiological labels (developmental dyslexia, or primary reading disorder with passive aggressive tendencies) to a child's behavior. Obviously, the classical diagnosis is useless to the child and to the clinician who must find a way to teach the child to read.

The prescriptive diagnosis may also record a child's specific deficiencies by using numbers, by standard scores, or by percent correct. But the prescriptive diagnosis has five characteristics that differentiate it from the classical diagnosis:

1. It defines the specific reading behavior measured, usually by the nature of the test used.

2. It describes the behaviors operationally, usually by the nature of the test item. ("Select one of

four alternative titles that expressed the paragraph's main idea.")

3. It defines the conditions of behavior on such dimensions as: a timed test, in a classroom, etc.
4. It defines the criterion of success in such terms as "grade level achievement" or "percent correct." This is called expectancy level and and is determined by the teacher, who considers the entering level of the child, his general ability level, his degree of retardation and the level of the materials available. The expectancy level is set at a level higher than the child is presently operating, but low enough for him to reach in a relatively short time.
5. It answers the question, SO WHAT? of its findings. The teacher is not allowed to record a qualitative or quantitative designation to any test behavior unless he also records a "best guess" SO WHAT to indicate what strategy, grouping, medium or level (see Figure A) will remediate the deficiency. The teacher usually records in the SO WHAT column the name of a piece of learning material to help remediate

the deficiency.

Figure B is an example of a HIGH INTENSITY LEARNING CENTER SO WHAT Diagnosis for a retarded reading seventh grader. It cover lower level reading skills. Another form is used for higher level or comprehension skills. That form is shown as Figure C. The behaviors one chooses to list on a SO WHAT Diagnosis form are determined by the nature of the pupil populations, the available teaching resources and the biases and talents of the teacher.

The first four characteristics of the SO WHAT Diagnosis are defined by the diagnostic tests used. The tests are parts of published standardized batteries, teacher-made checklists or reading samples. Using the test as the instructional objective forces the teacher to define the behavioral outcomes and requires him to admit to himself what he conceives the reading act to be. It prevents teachers from using the stereotyped cop-out: "I don't believe in standardized reading tests. Reading is much more than what the Metropolitan Achievement Test taps. I teach for those other things that tests don't measure."

The SO WHAT Diagnosis does not advocate teaching to the test. Instead, it demands that teachers teach for the types of behaviors defined by a criterion test. Reading is always "more than the test measures." But whatever more one cares to teach must, by the rules of the SO WHAT Diagnosis, be defined in a criterion test. For example,

FIGURE B

SAMPLE OF SO WHAT DIAGNOSIS FOR
BASIC READING SKILLS - USED IN
THE HIGH INTENSITY LEARNING CENTER

Name John Smith Age 13 Grade 7

Date of Tests 9/69 Grade Level Expectancy 7.0

Behaviors	Score	SO WHAT
1. Visual Discrim of Letters	OK	Have him work in spare time on letter form board for b, p, d, q, u, v, w, x y, z
2. Alphabet Knowledge	OK	
3. Visual Memory for Words	poor	Tachistoscope Training-EDL Spelling Spelling 2, 3, 4 Psychotechnics 1[illegible]
4. Word-Recognition (Sight)	poor	Same as 3; also Word Bank system, Dolch list and Chandler Basals
5. Word Analysis	poor	Visual Tracking/Michigan L.P. - Au
6. Conceptual Vocabulary	OK	No work needed now.
7. Auditory Discrim Sounds in wds.	weak	Medial & end weak. Michigan L.P. - Aud. Discrim.
8. Phonic Spelling	poor	Do 3-5 & 10-14 first. Then use 10- dictations daily.
9. Initial Consonants	good	No work needed.
10. Final Consonants	weak	Work on 3-5, 7 first. Then program additional Michigan L. P.
11. Initial Blends	weak	Back up with BRL and worksheets.
12. Final Blends	poor	Intersperse with word and
13. Short Vowel Sounds	poor	card games. If this doesn't work,
14. Visual Discrim. of Vowels	poor	use Speech To Print one-to-one.
15. Auditory Syllabification	good	No work needed.
16. Visual Syllabification	poor	Ignore for now.
17. Structural Analysis	poor	After 3-5, 7 use Macmillan.
18. Common Confusions	weak	Scott Foresman, programmed Spelling and other work books.
19. Oral Reading Comprehension	good	No work needed.
20. Silent Reading Comprehension	good	(No code busting skills.)
21. Listening Comprehension	weak	EDL Listening
22. Following Written Directions	poor	Barnell Loft Follow Directions A & B
23. Following Oral Directions	weak	Listening Skills Cassettes

FIGURE C

SO WHAT DIAGNOSTIC REPORT FOR HIGHER LEVEL SKILLS

Name_____ Age ____ Grade ____

Date of Test _____ Expectancy ____

Behaviors	Score	SO WHAT?
VOCABULARY		
General		
Science		
Math		
Social Studies		
FOLLOW DIRECTIONS		
Definitions		
Simple Choice		
Mathematics		
Map		
REFERENCE SKILLS		
Parts of a book		
Newspaper		
Dictionary		
Index		
Graphs		
Classifying		
Reference books		
Maps		
Organizing		
Recall of Sequence		
COMPREHENSION		
Recall of Details		
Recall of Main Ideas		
Inference		
*Self-Initiated Reading		

teachers who claim to teach children "a love of books" have been forced to define what they mean operationally. How does one know that Johnny loves to read books? In Figure C this instructional objective is defined by a behavior listed as Self-Initiated Reading. This is simply an operational definition and is measured by a teacher check list.

Whatever tests one uses, they should help the teacher pinpoint the specific behaviors that must be learned and how the learner is most likely to learn those behaviors. Many tests, including informal teacher-made instruments, can isolate the behavioral deficits. But practically no test reports how a pupil learns. The best analysis of how the child may learn is a calculated guess based on how the child tends to perform on a test. That guess is recorded under SO WHAT (Figure B). When treatment begins, the teacher may need to correct his guess. To do so, the teacher tries any combination of the eight variables listed on the Taxonomy (Figure A) to engineer the types of responses defined by the criterion tests.

C. Learning Activities in the Centers

Intensified instruction is a system by which a learner responds to prescribed stimuli 85 to 95% of the assigned time. The prescription insures that the individual works on the specific skill or information he needs according to the SO WHAT Diagnosis.

The individual's schedule is simply parts of the SO WHAT column (Figure B) fitted into a time schedule with one time slot devoted to straight reading comprehension regardless of how deficient the reader is in basic code busting. Thus, the three-hour schedule for the seventh grader whose SO WHAT Diagnosis is shown as Figure B, appears as Figure D. In most cases, a child's schedule is conveniently split into three areas: Word Study, Comprehension, Word Study Skills.*

Examples of the materials and physical setting for this type of prescriptive High Intensity Learning Center are described later in this section. By structuring the learning environment with a large variety of specially designed materials that do not require constant teacher control of delivery of stimuli, the teacher can meet the content need, level and rate of learning of each pupil with a 30 to 1 student-teacher ratio.

A simple model is used to determine which materials to use, how to structure the physical environment and which strategies to employ. To intensify instruction the content, level, and rate of learning must be adjusted to each individual. The materials, strategy and resources must....

*In Figure D, Tommy is so deficient in basic "code busting" skills, that most of his activities are concentrated in Word Study.

FIGURE D

CLASS SCHEDULE FOR RETARDED READER SHOWN IN FIGURE B

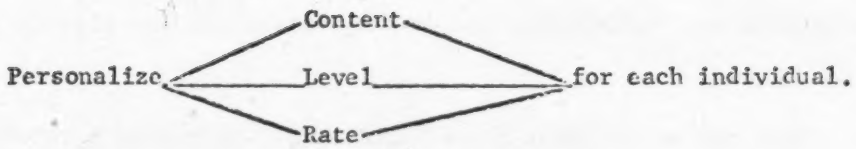
Word Study	
9 to 9:15	Visual Tracking
9:15 to 9:30	Tach Training EDL and Psychotechnics
9:35 to 10:00	Michigan L. P. Words Books 3 - 4

Comprehension	
10:00 to 10:30	Read for Comprehension in Reading Attainment (Red) and in Step Up Books.*
10:30 to 11:00	EDL Listening Skills Tapes

Word Study	
11:00 to 11:20	Auditory Discrim. Michigan L. P. Listening
11:20 to 12:00	Word Bank, Word Games to pre-teach vocabulary in Chandler readers

These activities may be scheduled over a three day period for one hour each day.

* Regardless of how deficient a pupil is in basic word analysis, a high interest and low vocabulary book or kit is programmed into his schedule to give him a feeling of what reading is really is.



Applied to this model are a number of classical learning principles, four of which are especially important:

a. The individual's presenting behaviors determine what and when to teach him. Presently, most schools and clinics predetermine what a child will learn. For example, most first grades have a set of basal readers that largely determine the content, rate and level of instruction. The child either fits the program at a prescribed rate and level or he flunks. Some teachers manage to divide the learners into three sub-groups and write this off as "adjusting instruction to individual needs." This, of course, is an absurdity, for it implies only three possible combinations of rates, levels and content needs. Such absurdities contribute to dyspedagogia.

b. Motivation management is the major determinant of learning. Ironic as it may seem, one of the most insidious forces to undermine learning in the classroom is the teacher training institution and the school administration that require the traditional lesson plan. The lesson plan is the "fifth column" of the school. It misrepresents motivation. As a result, many practicing

teachers do not understand, nor do they appreciate the significance of motivation.

What the lesson plan calls "motivation" is really attention-getting. Attention-getting is a useful external device such as yelling, or telling a humorous story, or "introducing" a subject. Motivation, on the other hand, is what a learner feels when he responds to a stimulus and knows immediately whether or not his response is adequate. If he discovers the response is adequate, he feels good. We call it positive reward. If he discovers the response is inadequate, he receives (or feels) negative reinforcement. That reinforcement system in a High Intensity Learning Center is translated into rewards, or points, or simple charts, graphs or records. The formal or informal reinforcement system sets an "affective tone" which is motivation. In other words, motivation is the result of a learner experiencing the contingencies, or pay offs, or results of his behaviors.

This is a fact of life intrinsic to all behavior, but it is rarely used in the classroom or clinic as a management technique in learning to read.

An understanding of the nature and significance of motivation requires the entire instructional system to be modified to present each stimulus or set of stimuli to each learner immediately following each learner's active, overt response to a previous stimulus. This

is intensive learning and is different from what is allowed to occur in the traditional, teacher-directed large or small group lesson.

c. Immediate feedback is provided for each response. Motivation management depends upon the learner knowing immediately the appropriateness of his response. How else can the learner experience positive or negative reinforcement which becomes the impetus to attend to the next stimulus?

d. Whatever is to be learned should be a reinforced (rewarded) response to an appropriate stimulus or set of stimuli. Teaching is behavior management. The teacher structures an environment in which prescribed stimuli are presented to the learner, and the learner's responses are appropriately reinforced. Too often, teachers expose children to information and assume that information is learned. But intensified learning is more than mere exposure. Learning occurs when the learner overtly responds, and that response is immediately reinforced positively or negatively. Mere knowledge of the response's adequacy or inadequacy is usually reinforcement for most normal children. The important point is that unless an overt response to programmed stimuli is reinforced, the teacher cannot assume learning to have taken place.

D. Personnel - Selection Staffing and Training

Applying the principles of learning described requires a very different teacher than traditionally sought in remedial

work. The teacher must be a manager, not a dispenser of wisdom. The manager determines the target behaviors to be achieved. The manager diagnoses. He programs the learner according to the SO WHAT Diagnosis and then matches sets of hard and software to the content need and levels of each learner. The instruction becomes largely self instruction or small pupil-team learning. The manager or teacher adjusts resources using the Taxonomy (Figure A) as a guide. The Taxonomy offers eight variables the teacher can manipulate until he gets the desired response from the learner. The learner controls his own rate of learning and almost all the record keeping.

Examples of types of materials to teach reading used in this type of "learning center" appear with the interim objectives in the APPENDIX. The teacher's job is to manipulate these materials in relation to pupil needs, to modify materials so that they can be used as self-directing and self-correcting learning experiences, and to give on-the-spot first aid to the learner when the materials to teach a specific behavior are unavailable or non-existent.

Teaching staff for the project will be selected from the pool of personnel identified by each of the school districts. We will welcome recommendations and advice from the leadership in each of the seven school districts on candidates for participation in the project. To the extent that para professionals may be used they will be

selected from the neighborhoods of the target populations.

The criteria we will apply in the selection of candidates will include a record of success or demonstrated ability to

- relate to and interact productively with young people of the target population
- apply current knowledge of how young people learn
- respond flexibly to the changing needs of a unique situation
- use learning materials from the area of reading and language arts
- use different learning strategies in accord with the needs of the learner
- work effectively with individual students

The minimum qualification for a professional to be considered would be certification as a teacher by the State of Virginia. We reserve the right to reject recommended candidates in the event they fail to meet our criteria.

We will select one professional to staff each High Intensity Learning Center (HILC) in each of the school districts. These staff personnel will work directly with the 125 students attending the HILC.

In addition LRA-UEI will employ and compensate two people with extensive experience and training in reading and individualized learning techniques as field supervisors and program monitors. To the extent feasible we will attempt to select these supervisors from those recommended by the school districts. However, we will seek candidates from whatever sources seem most likely to yield people with the characteristics we are seeking. The supervisors will provide support and guidance to each of the teachers operating the HILC on an itinerant basis. One of the supervisors will be headquartered in the western part of the state, probably in Dickenson County, while the other will be based in the eastern region possibly in Lunenburg County. They will apportion their time equally among each of the HILC's and schedule assistance according to the needs of each center. The supervisors will undergo training under the direction of LRA-UEI personnel in advance of the training of operating staff of the HILC's.

A one week intensive training program designed to prepare the teachers to effectively operate the HILC's will be held in one of the schools located most conveniently to the greatest number of participants. The teachers will be trained in the techniques of diagnosis, prescription, selection of materials for specific needs, monitoring student progress and management procedures. All of the relevant resources of LRA-UEI will be available during this training period which will be held in advance of the opening of the centers for

students. The training will take place in a fully equipped HILC with local students participating on a limited basis for demonstration purposes. While the teachers are in training, materials and equipment will be delivered to the schools in preparation for the establishment of each of the HILC's in the seven school districts. All of the costs of this training will be borne by the contractor.

The assistance provided by the two field supervisors will be augmented by LRA-UEI personnel in site visits throughout the duration of the contract at the rate of the equivalent of six to seven man days per month. Site visits will be more frequent during the start-up period and throughout the early stages of the project. The purpose of these visits is to

- assure quality control of the program
- provide needed assistance to the field supervisors and center teachers
- maximize the effectiveness of the program for each participating student in each of the districts

LRA-UEI will offer on an optional basis the opportunity for additional teachers in each of the districts to be oriented and trained in HILC techniques. One month after the HILC's are in operation an invitation will be extended to as many as six teachers to visit and observe the program in operation. Subsequently on a once a month

basis for the remainder of the school year the teacher operating the center will offer an after-school hours in-service training program for these teachers. The six participating teachers in each school will be expected to volunteer their after-school time since there will be no compensation by the contractor for this training. This experience could serve a number of valuable purposes, such as:

- increasing understanding and acceptance of the HILC's by the other professionals in the school
- facilitating the turnkey process at the beginning of the second year
- improving the classroom teaching effectiveness of those participating

E. Operation of the Centers

During the first week following the training program the center teachers will focus on preparing their centers to become operational the next week. Contractor consultants and field supervisors will be on site during this week. During the second week students will begin to be phased into the centers and by the third week all of the students to be served in the school will be scheduled and will begin regular attendance.

Students will attend the centers daily for instruction in

It enables both student and teacher to determine expeditiously the objectives completed to criterion level, elapsed time, and materials used in working on the attainment of the objective. A description of this ICP (Inventory for Continuous Progress) used for intermediate mathematics is included in the APPENDIX. The system used in reading will be similar to that in mathematics.

Additionally, students will graph their progress on appropriate vocabulary, reading comprehension, study skills and associated reading skills for a minimum of 150 days. Individual testing and treatment schedules will be determined for each school in the best interests of the student and the school program. At the beginning of the program, students will be grouped and/or individually tested and objectives will be outlined for each student. These will be translated into individual prescriptions for each student. Approximately 20-25 students will be scheduled into the center each hour of the day in order to properly accommodate the 125 students in each school. Students will attend during regular scheduled hours. Students will also be able to earn extra time in the centers, as well, upon achievement of agreed upon objectives within specified time limits.

Individual records of student progress and achievement will be maintained by use of a self administering system developed by LRA which is based on the Royal McBee card sort system. This system facilitates accurate record keeping and monitoring by the teacher.

forms that will be provided as a motivating device toward the fulfillment of the individual contract they have developed with the center teacher. This technique has been used with a high degree of success in previous HILC projects.

Students will be expected to sign in and out for each session in the HILC. Attendance records will be reviewed continuously as an aid in identifying students who may be lagging in progress. Time will be scheduled on an individual basis during the regular day for students to "make-up" lost time due to absence or other reasons. If it becomes necessary after school hour sessions may be held in schools where it is feasible and bus schedules permit.

F. Objectives, Guarantees and Cost Implications

Two levels of objectives form the basis of the communications program and relate to the guarantees of achievement.

Terminal Objectives

The terminal objectives are to be measured by established standardized tests to be selected by agreement between the contractor and the school district project managers. We recommend the use of the Stanford Achievement Test or the California Reading Test. The two major objectives are broadly defined as Reading Comprehension and Total Reading as indicated by the achievement test scores. The base flat fee for the delivery of these objectives in accord with the conditions

described below is 75% of the total average maximum allowable per student i.e. $63.75.

Condition 1: the mean achievement scores for 80% of the pupils with 90 IQ's or better will be one year's increase in the first six months.

Condition 2: the mean achievement scores for 15% of the pupils with 90 IQ's or better in one year will be 1.5 year's increase.

Condition 3: for pupils in the 70 - 90 IQ range, the mean achievement scores will show one year's growth in one year.

Contingencies:

1. For Condition 1, above, a bonus of $4 will be paid above the flat fee for each pupil for each month gained above that indicated.

2. A deduction of $4 will be made from the basic fee under Condition 1 for each pupil for each month below the base of one year gain in six months.

3. A bonus of $4 will be paid above the flat fee per pupil for every month gain above 1.5 years gain in one school year under Condition 2.

Interim Objectives

Included in the APPENDIX are several of the interim behavioral objectives and types of materials to be used in the High Intensity Learning Centers coded to the Taxonomy of Instructional Treatments (Figure A). These objectives are samples taken from our comprehensive banks of several hundred objectives in reading developed and compiled by LRA-UEI personnel. The specific list of interim objectives to be used is subject to agreement as a result of consultation with each school system's project manager. The contractor guarantees each pupil

will demonstrate proficiency on a battery of objectives selected individually for each pupil based on his in-take diagnosis for a flat fee of $21.25.

Contingencies:

1. For each objective over the basic battery in which each pupil demonstrates proficiency, the contractor will be awarded a bonus of $2 over the flat fee of $21.25.

2. For every objective under the basic battery in which the pupil does not demonstrate proficiency. a penalty of $2 will be deducted from the flat fee.

Testing Conditions

The contractor will present to each project manager three criterion test items related to the performance objectives (both interim and terminal) for each test item to be used. Testing on these items is to be administered every six weeks after the initial "start up" period.

Certain conditions relate to the use of the standardized tests. These include:

1. The same test pre must be given post.
2. The same level test given pre must be given post. For example, a pupil pre-tested on the California Reading Test Junior High Level cannot be post-tested on a California High School Level because different levels of the "same" test are

not statistically normed on a continuum. They are in effect different tests.

3. Because we are dealing with an extreme end of the curve, pre-tests must be given on that level of the test at which the pupil scores near the mean Given the level of achievement of the target population, this will usually require a level of test that was normed for youngsters with chronological ages below that of the target population. This means that the absolute values of the scores are incorrect. But for the purpose of this contract the standardized tests are criteria for awarding achievement contingencies based on growth, and for this purpose the pre-post growth scores will be accurate. To violate this condition is, on one hand, to penalize the contractor when extremely low achievers gain but do not show on a post-test at a higher grade level and on the other hand to penalize the Virginia schools by awarding the contractor contingencies for simple statistical regression to the mean.

It should be reemphasized that the number of students involved in this project in each of the schools is too low to permit a high

level of cost effectiveness. If there were 250 students participating at each school it would be feasible to provide the same services and guarantee similar levels of achievement at about one and a half times the quoted cost for the present project. It should be noted, further, that the costs of program operation in the second and subsequent years will be significantly below that of the first year since most of the materials have been designed to be non-consumable with a life expectancy of 3 to 5 years. In addition, start up costs after the first year will be minimal. Thus a very high level of cost effectiveness in the turnkey process can be guaranteed. The specific level will be determined within the first month after completion of this contract.

G. Facilities

This project will require a minimum of one standard size classroom at each of the eighteen schools. With the exception of the Jacox Junior High School in Norfolk all school districts have indicated their ability to provide the required space. A portable classroom or other suitable space will be provided by the contractor for the students at Jacox. Approximately 25 square feet per student is the standard to be applied in deciding on room capacity.

The classrooms to be used for this project will be renewed to provide an atmosphere in marked contrast to the usual school room. We will make maximum use of available room furnishings within this concept. Each room will be freshly painted, if necessary, area carpets

installed, air conditioned, and decorated with window draperies. Each room will be outfitted with several comfortable lounge-type chairs, office type desks, and conference tables, study carrels and bookcases and file cabinets for display and storage of student learning materials. Rooms will be equipped to accommodate approximately 25 students.

Each room will require a minimum of five duplex electrical outlets to properly support the A-V equipment which will be used by the students.

Audio equipment will be used with headsets to minimize disturbances to other students while the carrels will be equipped with screens for comfortable viewing.

H. Learning Materials

The materials used in each HILC include large varieties of software and some hardware currently available from dozens of publishers, manufacturers and some such as IPI are the result of national curriculum studies. No one publisher produces the entire system of materials at this time. Among the materials included in the area of communications are: Michigan Language Program (LRA), Barnell Loft Specific Skill Series, SRA Labs, Random House Reading Program Programmed Book Conference, Follett Social Studies, Random House Skilpacers, Dolch Word Analysis Cards, Addison Wesley Reading Development Kit.

The essential characteristic basic to all the materials is that

each has been selected on the basis of at least three criteria:

1. The material is designed (or easily modifiable) to allow the content, level and rate of learning to be adjusted to each pupil with a 30-1 pupil-teacher ratio.

2. The content is relevant first to the needs and secondarily to the interests of the pupils to be served.

3. Most of the material is self-directing and self-correcting.

This last characteristic is of significance since it provides immediate feedback to the learner. Feedback has been shown to have a positive impact on the motivation of the learner for future involvement in learning activities. This factor coupled with carefully selected and prescribed learning materials increases the student's chance for successful achievement and frequently leads to increased motivation for further learning.

The materials are coded to selected criteria such as: skill, level, mode of presentation, learning mode, group size, media and so on. All of the materials are keyed to the attainment of specific performance objectives in reading.

The materials have been modified so that they are non-consumable. Experience has indicated that they can be used for the most part without significant replacement costs for a period of 3 to 5 years. All of the

required equipment and materials for the HILC will be provided by LRA. The HILC offers the specific combination of materials in reading and language arts in the appropriate quantities needed to intensify instruction for the target population of the eighteen Virginia schools.

1. Results of Experience with HILC's

Can high intensity instruction work in centers or in regular classrooms with 30-to-one pupil-teacher ratios? The system described here was designed for inner city ghetto classrooms serving severely retarded readers. Variations of High Intensity Learning Centers have been used in such classrooms all over the country with excellent results. To satisfy skeptical conservatives, the system was demonstrated successfully with delinquent boys who were severely retarded in reading. The system was also demonstrated for beginning reading in grades one and two where, until recently, self directing materials were unavailable. The system has operated successfully in junior high schools in Philadelphia, and New York, at Roosevelt High School in the Bronx, Westinghouse Vocational High School in Brooklyn and in elementary schools in Bedford Stuyvesant, Lower East Side and Harlem. An excellent system-wide application is now underway in Ossining, New York under Mr. Frank Crawford, one of Dr. Cohen's graduate students. Figure E is a summary of results generated by some of these projects.

By definition, intensifying instruction prevents dyspedagogia.

Figure E

SUMMARY OF RESULTS OF HIGH INTENSITY LEARNING CENTERS IN SOME PROJECTS 1967-1970

SCHOOL OR PROJECT	GRADE LEVEL	TYPE OF POPULATION	RESULTS
Yeshiva University NDEA Institutes, 1966, 1967, 1968 Contact: Dr. Allen Cohen	4 - 9	Severely disadvantaged urban underachievers; 25-1 pupil-teacher ratio, ungraded	1.2 years mean gain in 4 1/2 weeks 2 1/2 hours per day
12 first & second grade classrooms in South Bronx	1 - 2	Severely disadvantaged urban Puerto Rican children	Mean reading levels on Metropolitan after 5 months: 4 classes a grade level above placement 6 classes on grade level 2 below level
PS 148 New York, N. Y. Contact: Principal	5 - 8	Emotionally disturbed socially maladjusted delinquent boys	1 year mean growth in 4 months. 2 years mean growth over 8 months
PS 1, New York, New York Contact: Hindy List	6	Urban disadvantaged Puerto Rican, Chinese and Black	Mean reading level in March of grade 6 is above 7.0 level for 3rd year in a row.
PS 130 New York, N. Y. Contact: Principal, Richard Kramer	3 - 6	Urban disadvantaged Puerto Rican and Chinese	Approximately 1 year mean growth in 12 weeks
Roosevelt, High School, Bronx New York Contact: Al Kimmel or D. Fitzgerald	10-12	Urban disadvantaged under-achievers entering high school at about grade level 5 achievement. Now in its third year	Approximately 1.2 average growth in 12 weeks.
Westinghouse Vocational High School, Brooklyn NY	10-12	Urban disadvantaged under-achievers entering high school at about grade level 4.5	Approximately 1 years gain in each 8-week cycle.
SEEK Alimac Center, City College of NY Contact: Jerome Skapoff	12-14	Urban disadvantaged community college level.	Pre tests: 8.5 grade level Post tests: 11.2 level in one semester

The data available from the above projects indicate this. For children already victims of dyspedagogia, intensified instruction is, therefore, a prevention as well as a treatment.

III. PROJECT ORGANIZATION AND MANAGEMENT

A. Project Team

The project team, with LRA assuming overall responsibility, has been specially selected to meet the required disciplines and experience necessary for the success of a project of this scope and nature. Total experience of the project staff includes curriculum development, instructional design, reading instruction, evaluation design and implementation, community relations, learning center operation and other relevant experience in schools, universities, industry and job corps programs.

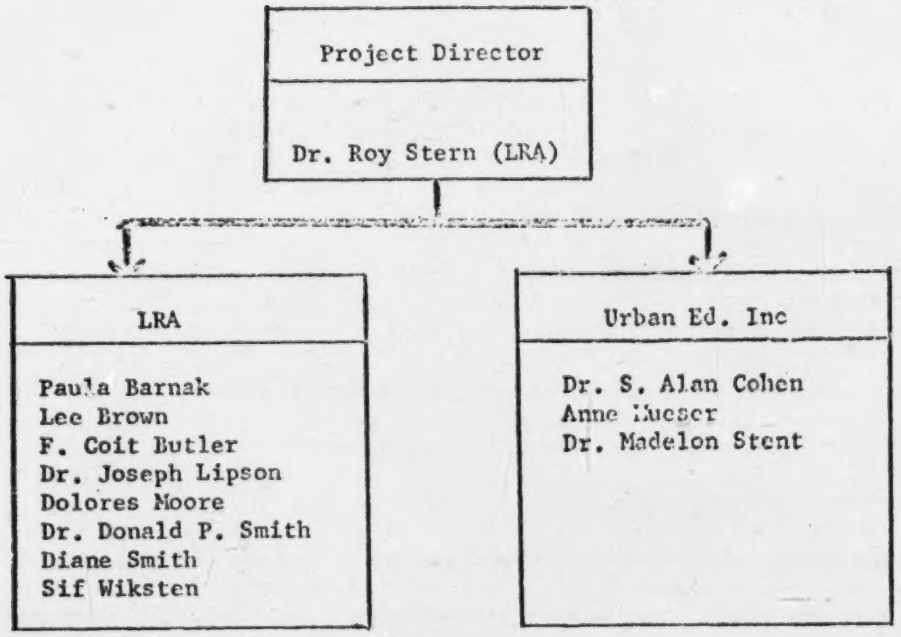
This chapter describes the project organization and management, highlights the qualifications of key personnel and describes information exchange and quality control procedures. Complete resumes of staff members are included in Chapter V on Corporate Background and Experience.

The organization of the project team is shown in Figure F.

LRA will have overall responsibility for the management, supervision, and coordination of the project and will work closely with each of the Virginia school districts and the State Department of Education. Urban Ed. Inc. will be responsible jointly with LRA for

Figure F

PROJECT TEAM ORGANIZATION



the training of the staff, establishment of the HILC's and the continuous monitoring of the program throughout the year. The following paragraphs present brief vitae of key personnel.

Dr. Roy Stern of LRA, a curriculum developer and administrator with a Ph.D. from New York University, will be the project director. Dr. Stern has extensive relevant experience, having served with Booz, Allen and Hamilton, Inc., management consultants, and having trained

school personnel in project management techniques. He has extensive experience in the individualization of instruction and in teacher training. Dr. Stern will provide leadership for all project personnel. His 20 years of experience in education is directly applicable to this project.

Dr. Joseph Lipson of LRA, a physicist by training with a Ph.D. from University of California at Berkeley is a curriculum designer with considerable experience in development of materials for individualized instruction. He was responsible for the development of the IPI mathematics materials at the Learning Research and Development Center at the University of Pittsburgh. Dr. Lipson recently led a team of consultants in the design of a completely innovative school to be established in the Washington, D. C. area. He is a nationally respected leader in individualization of instruction, the use of performance objectives and the development of criterion test items. Dr. Lipson has influenced the development of many teachers and administrators through training programs in which he has participated. Dr. Lipson will be involved in the establishment of the learning centers and in the monitoring of program effectiveness.

Dr. Alan Cohen, Vice President of Urban Ed Inc. and Professor and Director of the Reading and Language Arts Center of the Graduate School of Yeshiva University will bear major responsiblity for establishing the high intensity learning centers and training the

operating staff. Dr. Cohen was one of the founders of the war on poverty program, Mobilization for Youth. He has concentrated on research, materials and system development, writing and teaching in two major areas: teaching reading to the disadvantaged and learning disabilities.

Dr. Donald P. Smith, currently professor at University of Michigan and author of LRA's Michigan Language Program, will serve as a consultant on this project. Dr. Smith is a leader in the field of programmed instruction and classroom management particularly as these areas relate to reading instruction. He has served as a consultant for several national and state organizations and many local school districts. He is responsible for the training of a large number of classroom teachers who have demonstrated their effectiveness as instructional managers of the learning process in reading.

B. Contractor-School System Information Exchange Procedures

The procedures for assuring proper information exchange include periodic reports, meetings with and visitation by non-participating Virginia school district personnel and a project newsletter.

Periodic Reports

These will be made to the project manager every six weeks

or other periods to generally coincide with the reporting periods of the seven school districts. These reports will include:

- An evaluation of the program of the preceding period dealing with (1) the objectives specified and the extent to which they were attained, (2) student growth in reading achievement, (3) special methodology or techniques used, (4) problems, (5) relations with school personnel particularly regarding help received in dealing with problems.

- A plan for the following period to include (1) objectives set for the period ahead, (2) methods to be used in reaching the objectives, (3) any change in schedule of students, (4) anticipated problems, (5) help that might be needed from the school system.

Meetings With Teachers and Administrators

Three times during the project at each school, the center teacher and field supervisor will conduct meetings for regular school district personnel. The meetings will be designed to inform teachers on what we are doing and how we are doing it. The entire staff at each school will be invited to attend these meetings. Participants would have the chance during the second half of each two hour meeting to separate into small

groups to discuss in greater detail any aspects of the project of special interest to them. This will be an opportunity for the professional staff to feedback into the system as well as for them to become better informed on the project's operation.

Similar meetings will be held with building administrators. Administrative role and interaction with the project will be stressed in these meetings along with the information exchange. Among the major purposes of these meetings are the smooth interrelation of the project with the on-going school activities and preparation of personnel for the turnkey process which is to follow.

Personnel who have participated in these meetings will be encouraged to visit and observe the program in action. Administrators will be requested to cooperate in making this possible for their teachers. These activities will be in addition to the optional training program previously described for a limited number of teachers in the section on Personnel in Chapter II.

As previously indicated we highly recommend similar meetings for parents. The contractors will be pleased to cooperate with the schools in participating in this effort.

Project Newsletter

Three times during the period of this project the contractor will prepare a newsletter for distribution to school personnel and community leaders. The newsletter will be designed to

broadly inform its readers of the nature of the project, the people involved, the participants, the progress and invite inquiry, feedback and visitation.

C. Contractor Evaluation and Quality Control Programs

Evaluation and quality control will be provided through continuous monitoring and supervision of the project and project operation staff by senior members of the contractor's organization.

The on-site supervisor will monitor program and personnel on a regular basis while senior staff of LRA, and Urban Ed Inc will do so on a monthly schedule. Review will consist of:

- evaluation of individual and group progress against the objectives.
- identification of students progressing at levels in discord with expectancy.
- planning of techniques to deal with contingencies and particularly with the special needs of individual participants.
- observation of project operation staff in performance of their functions.

This type of review is aimed at maintaining and upgrading the

quality of the project through recommendations for needed modifications. Senior staff members of the contractors will discuss any major changes recommended with the project manager to assure agreement and support.

IV. PROJECT MANNING SPECIFICATIONS

The manpower requirements are described in this chapter, in relation to the schedule for "start up" activities and the continuing activities for the duration of the project.

A. "Start Up" Activities

We will be prepared to initiate project activities within two to three weeks after the contract is awarded.

The proposed sequence of activities and manpower needs relevant to the early stages of the project follow. LRA-UEI estimated manpower requirements are indicated in parentheses in terms of man-day equivalents. Figure G summarizes the tasks, and the approximate schedule.

Task	Elapsed Time
1. Interview and select eighteen project staff members to serve as center teachers and two field supervisors from pools provided by the seven districts (12 - 14 man-days)	2 weeks
2. Orientation and training of two field supervisors (5 man-days)	1 week

3.	Intensive training of teachers to operate HILC's (10 man-days)	1 week
4.	Set up and equip High Intensity Learning Centers at each school (10 man-days)	2 weeks
5.	Students begin to be phased into HILC's and are tested, their needs diagnosed and materials prescribed (10 - 14 man-days)	2 weeks
6.	Concentrated assistance and support for teachers at each HILC by field supervisors and LRA-UEI personnel (20 man-days)	1 week
7.	All participating students report regularly to HILC's	Remainder of school year

The schedule is designed so that at the beginning of the fourth week of the project some students will begin instruction in the HILC's. By the end of the sixth week all students will be reporting on a regular basis to the HILC's for reading instruction.

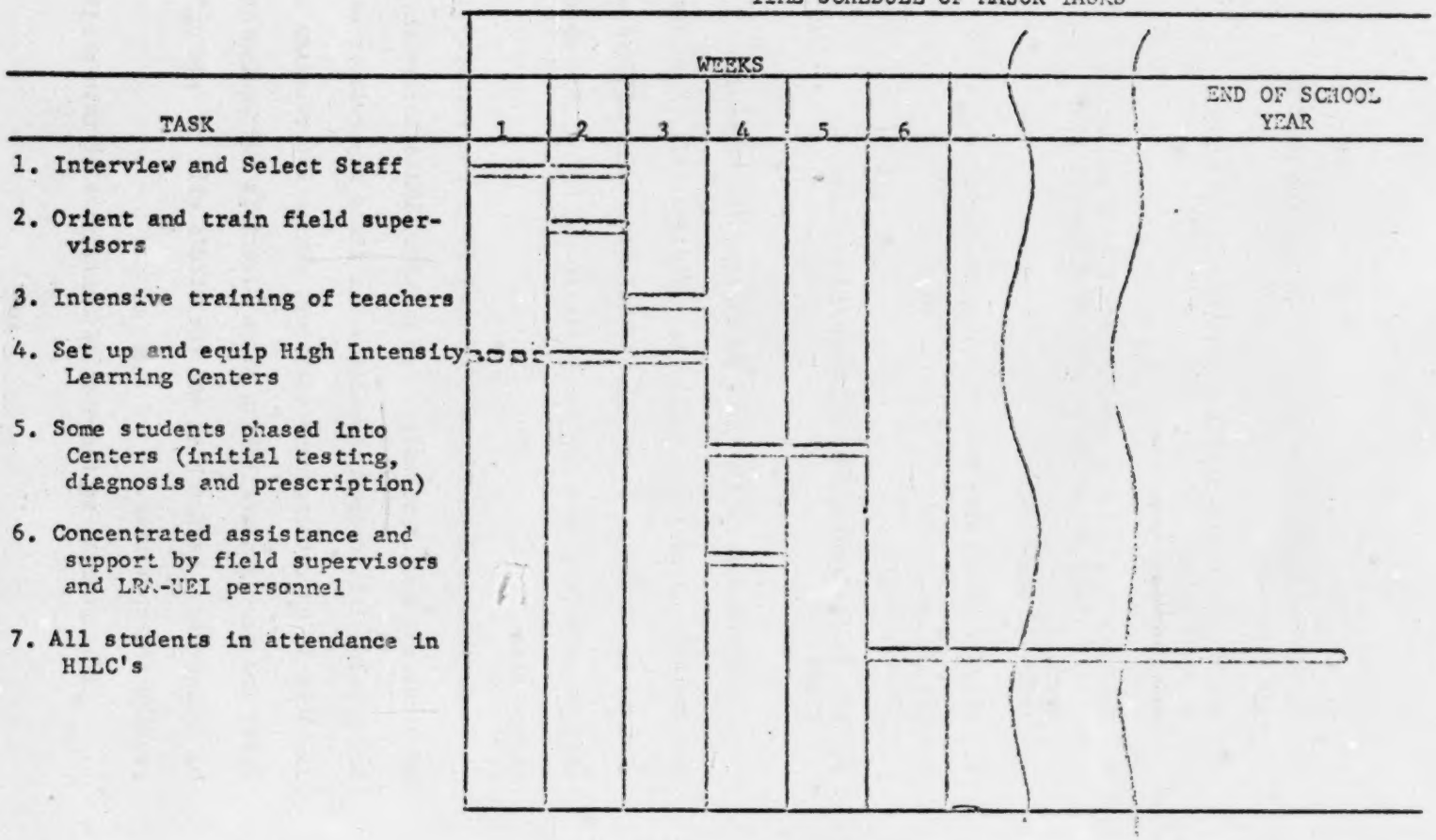
As indicated in Figure C several different activities will be occurring simultaneously. For example, while interviews are being held with teacher candidates the field supervisors will be involved in orientation and training. While interviewing of staff and training are taking place materials and equipment will be delivered to each school and the HILC's will be "set up" and readied for operation.

It is crucial to the cost effectiveness of this project that

Figure G

Virginia Schools Project on
"Guaranteed Student Achievement in
Reading Through Operation of Accelerate
Achievement Centers"

TIME SCHEDULE OF MAJOR TASKS


WEEKS
TASK
1
2
3
4
5
6
END OF SCHOOL YEAR
1. Interview and Select Staff
2. Orient and train field supervisors
3. Intensive training of teachers
4. Set up and equip High Intensity Learning Centers
5. Some students phased into Centers (initial testing, diagnosis and prescription)
6. Concentrated assistance and support by field supervisors and LRA-UEI personnel
7. All students in attendance in HILC's

students be scheduled in any given school to provide a critical mass, within the existing constraints of the RFP. Thus, scheduling of students should be done so that approximately 25 students are scheduled for the HILC each hour of the school day. This will enable the center to properly serve the 125 students during the five to six working hours of the usual school day as well as allow time for movement of students, make-up work due to absence and incentive time for those progressing well and desiring additional opportunity.

B. Continuing Project Activities

The continuing activities include all the aspects of individualized instruction with the participating students, coordination, supervision and liaison with the center staff and local school personnel and evaluation and quality control. Though the center teachers will continue to be employees of the local district and continue to be considered as such they will be expected to take their direction relevant to center operations from the project field supervisors and/or LRA-UEI personnel. Every effort will be made on the part of the contractor to assure harmony with the on-going school operations and personnel. Potential problem areas will be thoroughly discussed well in advance with the local school district's project manager to assure a high level of correlation of activities between school and project operation.

After the first six weeks of project activity the field

supervisors will begin a regular schedule of visits to each of the centers. The proposed manpower allocation for this project will enable them to visit each center for one day approximately once every other week. They will be on call to respond to special needs of any center on short notice. In addition LRA-UEI personnel will make site visits throughout the year. These will be more frequent during the first few months of the project and generally decrease in number as the project progresses. LRA-UEI personnel will make field visits to the centers equivalent to six to seven man-days per month over the period of the contract which is estimated at approximately eight and a half months. During this time the LRA-UEI personnel will evaluate, monitor, assure quality control, participate in information exchange and training meetings with operational staff and with teacher and administrative representatives of each of the schools.

Part-time clerical assistance is expected to be provided to each HILC by the local school.

V. CORPORATE BACKGROUND

Each of the two sections of this chapter describes the background, objectives and previous experience of each of the two participating organizations of the consortium and includes resumes of the key personnel.

A. Learning Research Associates

Learning Research Associates, Inc. was organized by Lee D. Brown in 1968 as a subsidiary of Universal Education Corporation, New York, New York. Its objectives are two-fold:

1. The design, development, validation, production and professional dissemination of innovative learning and teaching materials for elementary and secondary schools.

2. The provision of consulting services and in-service training programs to schools, education-related agencies, and other youth-serving organizations.

In the area of materials development, LRA's initial fields of concentration are communication skills with emphasis on reading, mathematics, science, and social science. Its learning and teaching materials have the following characteristics:

- Development of specific student performance objectives and performance tasks for maximum student and teacher feedback, and for practical, effective evaluation. Emphasis on active student involvement with the "stuff" of learning, with concomitant emphasis on active teacher involvement through diagnosis and

prescription.

- Maximum flexibility of teacher and learner strategies to achieve desired student performance.

- Teacher training and the training of highly professional consulting and marketing personnel to implement the educational design.

- System analysis and functional flow design in terms of tasks, production commitments, and "closed loop" systems of quality control and checkout.

- Multi-media options that include a wide variety of relatively inexpensive equipment and material, including audio-visual and manipulative.

- Emphasis on problem-solving as a learning strategy.

- Emphasis upon continuous student progress.

- Field testing and validation of products in school settings during prototype and revised prototype design stages.

LRA's professional staff consists of sixteen full-time people and twelve full-time and part-time consultants. In addition, it has direct access to twelve full-time professionals and eight

part-time consultants and members of Universal Education Corporation's National Advisory Board, including Wilbur Cohen, currently Dean of the School of Education, The University of Michigan, and former Secretary of Health, Education and Welfare; Robert Glaser, Director of Learning Research and Development Center, The University of Pittsburgh; Martin Deutsch, Director of the Institute for Developmental Studies, New York University; Bayard Rustin, Executive Director of the A. Philip Randolph Institute; and Myrtle McGraw, Chairman of the Department of Developmental Psychology at Briarcliff College.

The professional staff includes three mathematicians, one physicist, two reading and English specialists, one biologist, one educational psychologist and one sociologist. Additionally, twelve staff members have had teaching and school administrative experience, ranging from limited to extensive experience at all grade levels. Finally, of the professional staff, thirteen have master's degrees and nine have doctorates. All professional staff members are familiar with, and most have practical experience in the development of performance objectives and performance tasks based on observable, measurable student behaviors in basic skills and key concepts in all major curriculum areas. Most professional staff members are familiar with the techniques and problems of systems analysis and management, including planning, programming

and budgeting systems, PERT and Gant systems and charts. Since Learning Research Associates, Inc. is less than two years old as an organization, its experience with related projects is limited. However, key staff members who would be directly involved in the Virginia Project "Guaranteed Student Achievement in Reading Through Operation of Accelerated Achievement Centers" have directed and/or had "hands-on" experience in the following related projects:

Individually Prescribed Instruction (IPI) -- Oakleaf and Baldwin-Whitehall Schools, Pittsburgh, Pennsylvania	A totally new system involving diagnosis of student performance in elementary mathematics and science, and prescriptive activities and learning materials based on student performance objectives was developed, validated, and installed at Oakleaf and Baldwin-Whitehall schools under the auspices of the Learning Research and Development Center, University of Pittsburgh, sponsored by the U.S. Office of Education.
Individually Prescribed Instruction (IPI) - Nova Schools, Ft. Lauderdale, Florida	An extension and improvement of the original IPI system which utilizes learning activity packages (LAPS). LAPS consist of 20 to 100 pages representing a private learning plan for the individual student and includes student study guides, suggested resources and self evaluation sections. Instructional goals are stated in behavioral terms at the beginning of each LAP and various ways for the student to reach the goals are

	suggested. Developed for K-12 in all the major subject areas.
Inventory for Continuous Progress in Mathematics developed by LRA	An individualized instructional system using key sort cards, performance objectives, criterion referenced tests (pre & post), and a wide variety of learning activities and materials. It is self-directing and self-correcting and provides the student and teacher with continuous monitoring and immediate feedback.
Planning a Complete Educational System--Fort Lincoln-New Town (District of Columbia Public Schools)	A complete educational system for the proposed new community of Fort Lincoln for an estimated 10,000 students, ages 3 to 18. The planning process involved parents and students, and was based on student performance objectives and related performance tasks in all major curriculum areas, specifically developed for the project.
Planning a Complete Educational System--Welfare Island (New York City)	This current project involves designing a complete educational system for an education complex on Welfare Island (in the East River next to Manhattan) in New York City. The design is based on student performance objectives and related performance tasks in all major curriculum areas.
Training School Administrators in Project Management Techniques (New Jersey Urban Development Council)	Administrators were trained in project management techniques for effective and efficient planning and execution of educational programs. Each participating school district developed a network plan (PERT or CPM) for allocation of all resources, a time schedule and constraints.

Training Teachers and Administrators in the Development of Performance Objectives and Criterion Items for Elementary and Secondary Students (Essexville-Hampton, Michigan Public Schools)	District personnel oriented toward, and practicing individualized instruction, produced learning units and criterion items at their instructional level in subject areas of their choice. Key administrators became leaders in dissemination of the concept and practice of individualized instruction in their own district and in other Michigan school systems.
Training Teachers and Administrators in Individualization of Instruction (LRA Institutes on Individualization of Instruction)	Workshop-institutes represent a model for Individualization of Instruction. Teachers and administrators participate for three days by use of pre and post tests, performance objectives, prescribed learning activities, adaptation and selection of curriculum materials. The experience is designed to be practical and lead to immediate implementation in the schools.
Design and Evaluation of a Project to Increase the Achievement of Ninth Graders Retarded Three to Six Years In Reading and Mathematics (Morristown, New Jersey - Academic Advancement Project)	A special program currently in progress using individualized techniques and a multi-media approach integrating reading, mathematics, science and social studies to motivate students to greater achievement and improved attitude toward learning and school.
Curriculum Development and Program Operation-JOBS Project. (Chicago, YMCA and U. S. Department of Labor	Organized and directed nationally known group of teachers and teacher-trainers in the development of reading and mathematics curricula for high school dropouts in the city of Chicago.

	Performed supervisory and teaching functions for field-testing and teacher-training purposes. Project pre-dated OEO and is still considered one of the outstanding programs in the U. S. in terms of drop-outs who returned to school or secured gainful employment.
Evaluation of Pupil Personnel and Educational Administration Programs for the Bureau of Education Professions Development of the U. S. Office of Education (Washington, D.C.)	An evaluation, now in progress, of two programs of the BEPD involving development of comprehensive program descriptions, statement of program objectives in performance terms followed by a monitoring and impact evaluation. Program assessment and improvement are the prime goals of this project.

References

Project and LRA Staff Member	Person to Contact
1. IPI - Oakleaf and Baldwin-Whitehall (Dr. Joseph Lipson)	Dr. John Bolvin Learning Research and Development Center University of Pittsburgh
2. IPI - Nova Schools (Dr. Joseph Lipson)	Dr. Abraham Fischler Nova University Ft. Lauderdale, Florida
3. Fort Lincoln - New Town Project (Dr. Joseph Lipson)	J. Weldon Greene Public Schools Washington, D. C.
4. Welfare Island Project (Dr. Joseph Lipson)	Mrs. Felicia Clark Urban Development Corporation 1345 Avenue of Americas New York, New York 10019
5. New Jersey Urban Schools Development Council (Dr. Roy Stern)	Mr. Ray Milam, Exec. Director N. J. U.S.D.C. Trenton, New Jersey

6. AAP - Morristown, N. J. (Dr. Roy Stern)	Dr. Robert Weber Special Assistant to the Commissioner of Education New Jersey State Dept. of Education Trenton, New Jersey or William Kogen, Principal Morristown, New Jersey
7. Essexville-Hampton Project (Mr. Lee D. Brown)	Mr. Robert Boston Assistant Superintendent Bloomfield Hills Public Schools Bloomfield Hills, Michigan
8. Evaluation of Education Professions Development Act Programs - U.S.O.E. Washington, D. C. (Dr. Roy Stern)	Miss Iris Garfield Division of Assessment and Coordination U.S.O.E. 400 Maryland Avenue, S. W. Washington, D. C. 20202
9. LRA Institutes on Individualization of Instruction	Over 100 participants - names available upon request
10. JOBS Project	Mr. Bruce Cole Central YMCA of Greater Chicago

Facilities

LRA maintains offices in New York City and Washington, D.C. and warehouses in Paterson, New Jersey, Boston, and San Francisco. The New York City office, shared with LRA's parent company consists of 17,000 square feet. Warehouse facilities total 20,000 square feet.

For its own research and development use, and for use in its workshops, LRA has developed and maintains one of the most comprehensive libraries of publications on individualization

of instruction, and, to the best of our knowledge, the largest pool of behavioral objectives and criterion items extant in any commercial or educational organization in the U. S.

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B. Urban Ed. Inc.

Urban Ed. Inc organized and incorporated in New York in 1968 with offices in New York City, is a research, action and evaluation group which offers consultative and technical assistance services to schools, communities and governmental agencies.

Urban Ed. Inc. is the vehicle through which the High Intensity Learning Center concept developed by Dr. Alan Cohen, its Vice President, is implemented.

Urban Ed. Inc., is committed to the provision of such support, training and evaluation services as local groups require, and are appropriate to their needs. Urban Ed. Inc., feels strongly that local groups should choose among optional services, have the power to select firms, professional consultants and agencies with whom they wish to deal. This type of flexibility is a fundamental concept. The provision of these services within one organization is unique.

As grass roots leadership within the urban ghettoes emerges under school decentralization, and other programs for community involvement there will be a crying need for resources and professional leadership which will be accepted by the communities requiring such services. With

decentralization and other community participation programs which involve increased power in decision making and the opportunity to determine policy the complex and subtle barrier of suspicion that sometimes exists between the ghetto community and the governmental agencies, will need to be replaced by mutual respect and trust on which new solutions must build. Urban Ed. Inc., will work with representatives of these agents of the school, community and government as a team.

The effects of working within such a dynamic complex will not be easy but the alternatives cannot be tolerated.

The Executive Officers and consultants of Urban Ed. Inc., include substantial numbers of minority group members who have a record of proven belief that the citizens of the inner city can participate meaningfully in decision making and policy formulation as it relates to their problems and their relationship to local schools and government agencies.

The professional and university affiliated consultants of the group will help to devise and apply those long-sought new methods of attack on the complex educational, administrative and socio-economic problems in our urban school districts. These consultants bring special sociological and psychological insights to the problems of today's ghetto. Most of all, they work from genuine conviction that a chaotic struggle for community control can be anticipated and lessened by direct consultative intervention and direct on-the-job help in dealing with

the dynamics of local school operation and control.

In addition to the experience with HILC's previously described in the Technical Approach section other Urban Ed. Inc. projects follow:

New York State Program of Reading, Acceleration, Remediation and Enrichment for Secondary School Students - This program was funded by the New York State Department of Education under ESEA I to be operative in forty-four high schools in poverty areas, to specifically upgrade the reading achievement of the students in the schools. The program content, materials, adequacy of facilities, and class size and load were evaluated by Urban Ed. Inc. Recommendations for improvement were made by Urban Ed. Inc.

REFERENCE CONTACT:
Dr. Samuel D. McClelland
Director of Bureau of Educational Research
New York City Board of Education

Designed and Implemented Reading Program Including Staff Training - In the Anacostia section of Washington, D. C., Urban Ed. Inc. was responsible for the design of a reading curriculum for an experimental school. The total program was developed including the identification and selection of appropriate materials which focused on individualization of instruction for children functioning at a wide range of grade levels. Following program development the teaching staff was trained in the application of techniques of effective reading instruction in a series of workshops over a period of three months. This project utilized the concepts embodied in the High Intensity Learning Centers.

REFERENCE CONTACT:
Polly Greenberg
Senior Educational Consultant
General Learning Corporation
5454 Wisconsin Avenue
Washington, D. C. 20015

Evaluation of Summer Decentralized Programs - This program involved children in pre-school through secondary level and

was designed to increase the student's desire to read by improving their critical skills. Motivation of students to higher levels of achievement in science and mathematics was sought through the provision of stimulating classroom experiences. Non-English speaking children were also involved in the program which offered constructive supportive services to enable them to adjust realistically to the school environment. Other aspects of this program included guidance services, health clinics, field trips and group guidance sessions. This program was carried out in District #6 in Manhattan.

REFERENCE CONTACT:
Miss Marjorie Henderson
Title I
Coordinator District #6
665 West 182nd Street
New York City

The New York State Urban Education Program Enrichment and Remedial Academy - This program was designed to improve the basic awareness of scientific and mathematical concepts and to improve performance in science and mathematics as well as discover latent ability in mathematics and science by pupils in the Public Schools of District #6, Manhattan. Urban Ed. Inc. worked closely with the school coordinator and with the teachers staffing the project. Four schools in the District were utilized for the science and mathematics classes. Urban Ed. Inc. appraised and evaluated the curriculum and educational materials utilized to develop basic scientific and mathematical concepts and facts. One of the purposes of the Enrichment and Remedial Academy was to develop self-confidence by the pupils involved.

REFERENCE CONTACT:
Miss Marjorie Henderson
Title I
Coordinator District #6
665 West 182nd Street
New York City

Street Academies Program - The Street Academy is a pioneer "store front" school, for high school dropouts. The particular Street Academy with which Urban Ed. Inc. was involved was the

Benjamin Franklin Street Academy. The youth are recruited into the academies for counseling and motivational experiences, and to receive an individualized development program of vocational or academic choice for intensive remedial work, in English, Mathematics, History, Sociology and Heritage. Urban Ed. Inc. met with the staff, street workers, and students in its involvement in evaluating the impact and effectiveness of the Street Academy Program, curriculum, and relationships with the students. It reviewed with the staff and street workers the various aspects of the program including curriculum and guidance, the strengths and weaknesses and the overall success of the Street Academy.

REFERENCE CONTACT:
Dr. Samuel D. McClelland
Director of Bureau of Educational Research
New York City Board of Education

Lincoln Center for the Performing Arts Student Program - This program was utilized in 90 schools throughout the City of New York. It involved exposing the pupils to the performing arts consisting of music, dance and drama. The music consisted of chamber music, madrigal singers, opera and solo instrumentals. The dance consisted of modern and African dances as well as ballet. The drama consisted of plays presented by the repertory theatre of Lincoln Center. Urban Ed. Inc. evaluated the effect of this program and the extent to which the teaching staff prepared the students for the performances they would view. In addition, Urban Ed. Inc. evaluated the relationship of the performers to the subject audience (pupils) as well as the working relationship between the performers and the staff. . . .

VI. APPENDIX

EXAMPLES OF READING EXAMPLES

	Coded to Taxonomy of Instructional Treatment (Figure A)
Self Initiated Reading	2-6-1,2,3-2-0

Given an environment in which there is a number of trade books of suitable difficulty level and interest, the student selects and reads a specified number of books of his choice.

Example of Types of:

Materials: High Interest, Low Readability books from many publishers including:
Scholastic Book Services
Random House
Dell
Field Enterprises
Literature Samplers- LRA

Observation: Teacher tally of number of books read and number of times student chooses to spend "unscheduled" class time reading in preference to other activities.

Auditory Discrimination 1-1-1-1-2

Given a pair of words presented orally, the student names the initial sounds in each pair as same or different.

Material: Michigan Language Program

Observation: Wepman type test

Recall of Main Ideas 2-1,4,5-2,3,2-1,2,3

Given a paragraph, the student selects from a list of three statements the one which states the main idea of the paragraph. The student will be able to complete 8 out of 10 items correctly.

Example of materials:

Barnell Loft Specific Skill Series A-F
Getting the Main Idea
Random House Skilpacer
Selected items from SRA Labs, Reading Attainment Series

Observation: (informal 10 item multiple choice) tests, one for each reading level (3-6).

IS
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Recall of Details 2-1-1,2,3-2-2

Given a paragraph at the appropriate reading level, the student answers specific questions about the content of the paragraph.

Example of materials: Barnell Loft Specific Skill Series A-F
Locating the Answer
Random House Skilpacer

Observation: Multiple choice test, one for each reading level.

Use of Context 1-6-1,2,3-2-2

Given a sentence with a missing word, the student uses the context of the sentence to supply the missing word.

Materials: e.g. Barnell Loft Specific Skill Series A-F
Skilpacers

Observation: Clozure test

Making Inferences 2-2-2,3-1,2-1,2

Given a selection in which only facts are presented, the student will select from 4 choices statements which may be inferred from the material.

Selected items: SRA
Reading Attainment
Reading Development Kit

Programmed Book
Conferences: Random House Reading Program

Observation: Informal test provided by LRA

Distinguishing Fact and Opinion 2-2-2,3-2-1,2

Given a random group of facts and opinionated statements, the student will classify each one according to those categories.

Materials: Addison Wesley Reading Development Kit
Reading Attainment Series
Random House Reading Program

Obsetvation: Informal test provided by LRA.

Visual Memory 1-1,2,7-1,2-2-1,2

Given a flash presentation of a letter (series of letters, word, phrase) the student will reproduce the stimulus

a. orally

b. written

Observation: Visual Memory subtest, Durrell Analysis.

INTRODUCING LEARNING RESEARCH ASSOCIATES, INC.

Learning Research Associates, Inc. was organized in 1968 as a wholly-owned subsidiary of Universal Education Corporation, New York, New York, by Lee D. Brown. Mr. Brown served as Executive Vice-President of Science Research Associates before founding Learning Materials, Inc. (later purchased by Xerox) and is responsible for many innovative publications that included the first of the highly successful multilevel, individualized publications and the packaged learning system concept.

LRA's objectives are the design, development, validation, production and professional dissemination of innovative learning and teaching materials for elementary and secondary schools. Its initial fields of concentration are science, mathematics, language arts, and social science from kindergarten through grade 9. Where feasible, the learning and teaching materials will have the following characteristics:

- **Emphasis upon continuous student progress**
- **Maximum flexibility of teacher and learning strategies to achieve desired student performance**
- **Emphasis on active student involvement with the "stuff" of learning (emphasis on student experimentation)**
- **Emphasis on problem solving as a learning strategy**

- Development of specific student performance objectives and performance tasks for maximum student and teacher feedback and for effective evaluation

- Multimedia options that include a wide variety of relatively inexpensive equipment and material, including audio-visual and manipulatory

- System analysis and functional flow design in terms of tasks, production commitments, and "closed loop" systems of quality control and checkout

- Field testing and validation of products in school settings during the prototype and revised prototype design stages

- Teacher training and the training of highly professional consulting and marketing personnel to implement the educational design

CONTINUOUS PROGRESS EDUCATION

Providing the opportunity for continuous intellectual, social, and emotional development of students, without interposing artificial or arbitrary barriers to progress, is fast becoming the accepted role of education today. Educators now realize that the true function of the school is to facilitate the optimum development of each child in relation to his own potential by providing an environment in which the individual proceeds at a self-determined rate, using self-selected modes of learning to achieve self-selected and self-satisfying goals.

The application of the concept of continuous progress learning has resulted in the development of the non-graded school, the individualization of instruction, learning materials and media that accommodate individual differences and facilitate independent study, and testing and reporting practices that weigh the individual's absolute performance and potential. These ideals contrast directly with standard graded school organization and such practices as non-promotion, common achievement standards, graded curriculum, relative grading, large group instructional methods, graded textbooks, and instructional media and materials that provide common content for all students.

The traditional form of instruction in which all students are taught/learn (?) the same skills and knowledge, at the same time, is being challenged. Teachers are no longer constrained to work with the entire class of students at the same time because there are no practical alternatives. Innovative methods and materials for individualizing learning are becoming increasingly available.

The Teacher as a Learning Facilitator

The teacher who has had actual classroom experience with individualized, self-paced, and continuous progress curriculum materials and methods, is keenly aware of a radical change in role. With the introduction of learner-centered multimedia instructional programs, the teacher's traditional role of "information dispenser" is abruptly altered to that of "facilitator" of the learning process and "manager" of the learning environment.

A learning situation that allows for individual differences in learning rates, styles, and goals calls for the teacher to perform the following tasks:

- Diagnose individual learning needs
- Prescribe appropriate learning experiences
- Provide appropriate learning materials and equipment at the appropriate time
- Test and evaluate individual progress and achievement
- Compile individual and group progress and achievement records
- Provide individual tutorial and counselling help when needed
- Provide supplemental or alternative materials and experiences
- Assign, schedule and coordinate individual, small group, and large group learning activities
- Schedule, coordinate, and control the assignment of learning materials and equipment
- Evaluate feedback data on the effectiveness of learning materials, equipment, and methods

Most of these tasks are familiar to the teacher, but the added emphasis placed on some of them is new. However, the change in role occurs not only because of the change in emphasis in the various tasks involved, but also by the nature of individualized learning tasks that are often continuous and must be handled simultaneously. Thus, the management burden imposed on the teacher often defeats the very purpose of individualization unless there is a system to help the teacher cope with the myriad tasks.

The Teacher as a Decision Maker

In general, the teacher's roles in a continuous progress system are those of instructional decision maker and problem solver. To make decisions he needs readily available problem-solving information, apparatus, and methodology. Thus, the teacher should have at his disposal a quick-response information storage-and-retrieval system to assist him in the decision-making process.

The decisions faced by the teacher revolve around: planning for learning; arranging learning experiences; managing learning experiences; managing the learners;

testing and evaluating students; evaluating the system; record keeping and reporting; and research on teaching and learning. A classroom management system, therefore, must be capable of accepting and producing organized data upon which to base the decisions. The management system must also provide the methodology for organizing and applying the data to the decision-making process. Finally, the system must provide a simple, well-constructed rationale and process that will assist the teacher in arriving at a decision.

If the classroom teacher is to accept, and be successful in this new role, he must have simple but effective tools to help him do the job. Experience shows that an individualized learning program will fail unless an instructional management system is an integral part of the process.

The Student as a Decision Maker

Central to the aim of individualized instruction is the promotion and development of self-directed learning. True education is a continuous process of expanding the individual's capacity to learn. Learning does not occur because the teacher discovers and nurtures a student's inherent abilities. Instead, learning results from the interactions among student, teacher, and learning experiences; each contributing to the growth of both the student's capacity and desire for further learning.

Because the generalizable skills of decision-making and problem-solving are integral to the capacity to learn, students should be encouraged to participate fully in the process of decision-making, a major goal of an individualized instructional program. Each student, in cooperation with his teacher, should begin to make decisions concerning when he is to learn, what he is to learn, and how he is to learn. Within reasonable limits, each student should choose for himself the goals, the mode, and the rate of learning that are commensurate with his self-perceived capabilities. Individualization of instruction occurs only to the extent that each student, beyond certain minimums, is allowed to progress at his own pace; to choose the learning materials and mode suited to his own needs; and to vary the content and sequence of learning objectives to meet his own goals.

A PRACTICAL INSTRUCTIONAL MANAGEMENT SYSTEM

ICP (Inventory for Continuous Progress) is a simple, inexpensive, paper and pencil, non-computerized management system for continuous progress learning that uses the leading mathematics series as source material. The key to the system is the hand-sortable 5"x8" margin punched card that provides the data base needed for facilitating learning decisions.

System Characteristics

1. Simple and hand operated
2. Paper and pencil
3. Minimum equipment, non-computerized
4. Based on margin-notched cards
5. Self-contained
6. Designed for classroom management of learning, but expandable to school system
7. Teacher, teacher aide, or student operable
8. Independent of subject area
9. Adaptive to school environment, class size, scheduling, methodology, etc.
10. Expandable and flexible enough to be sufficient to the management needs of a course or a class and still serve as the first stage of a follow-on conversion to a computer-based school or city-wide management information system
11. Offers a wide range of levels of feedback data complexity and sophistication depending on amount and kind of input data provided and output data desired

System Inputs

1. Coded behavioral objectives identification data
2. Coded criterion test item identification data keyed to the behavioral objectives
3. Basic to the system is a means of providing self-scoring of tests to provide student performance data directly to the system on punched cards
4. Student identification data
5. Student historical data
6. Student placement data
7. Student performance data, pre- and post-test and comprehensive longitudinal follow-up
8. Learning materials, equipment, films, aids, activities, special events, identification data keyed to objectives
9. Remedial materials and methods keyed to criterion test items

System Outputs

1. Student profile data; individual and class
2. Student progress data; individual and class
3. Student achievement data; individual and class
4. Student diagnostic data; individual and class
5. Student prescriptive data; individual and class
6. Student grouping and scheduling data
7. Student work unit assignment data
8. A feedback system calling attention to and anticipating student or program problems
9. Criterion test item analysis data
10. Learning materials content, method, and media analysis data

System Components

1. Comprehensive performance objectives sequence
2. Diagnostic placement tests keyed to performance objectives sequence
3. Student performance record card (margin notched) for each performance objective -- about 70 per level, per student
4. Criterion test (two equivalent forms) for each performance objective
5. Data summary charts and forms for compiling profiles on any data parameter such as individual student performance, class performance, materials used, time needed, etc.
6. Whatever standard texts, programs, materials, films, tapes are being used by the school. Lessons, exercises, and reviews keyed by page number to the performance objectives and cited on the student performance record card
7. A series of nine area review tests to be taken by each student whenever he reaches that point in the sequence
8. A series of four major review tests that are power tests to be taken by all students at the same time, regardless of where they are in the program sequence. (Scores on these tests will reflect rate of progress as well as competency)

Using the Student Performance Objective Cards

The classroom instructional management system is based on the margin-punched card that has been used throughout industry for over 50 years. Lately, many school districts that cannot afford computer time have turned to such card-sort systems to help alleviate their administrative and clerical chores. Card-sort systems, in effect, mechanize clerical routine. Card sorting is easy to understand and to use. The holes around the perimeter of a card represent coded values (see page 6). A value or factor is recorded when a hole is notched. Passing a needle through a group of cards and then raising it causes the cards notched for that value to fall. This permits selective as well as sequence sorting which provides a simple but quick-response data storage and retrieval system. No special skills or training are required for using this system. A short sorting sequence will give the teacher immediate information on individual or class performance, progress, or deficiencies. Sorting the performance cards also provides a check on such things as learning style, rate of progress and material effectiveness.

On the opposite page is a sample card. This "Student Performance Objective" card is the basic source of information concerning student progress. The card provides both a written and notched record of student performance on the criterion test and indicates the amount of time and kind of activity needed to achieve criterion performance.

The following information can be recorded on the card, both in written and in notched code:

STUDENT PERFORMANCE DATA CARD-FRONT

NAME	TEACHER	LEVEL	AREA	OBJECTIVE	C
NAME 22	TEACHER 7	SOURCES	WEEK	TIME	OBJECTIVE
Amanda Moore	L. Brown	4 C 17 © C	30	2	4510

OBJECTIVE — Compute the average of two or more numbers in numerical problem form or in word problem form.

MINI-LESSON — Can you compute the sum of more than two numbers? Card 4204
Can you divide any whole number by a two digit number? Card 4501

To find an average, all you do is *add* all the numbers and then *divide* their sum by the number of numbers you added. This way, you can figure the average age of your friends, or the average number of students in classes in your school. Let's see how you would find the average number of hours you watch TV every day.

Suppose you watched TV:
Mon. - 2 hours Fri. - 3 hours
Tues. - 2 hours Sat. - 5 hours
Wed. - 1 hour Sun. - 6 hours
Thurs. - 2 hours

Total hours for week: 2+2+1+2+3+5+6=21
Number of days in week: 7
Average hours a day is $\frac{21}{7} = 3$

Answer: You watched TV an average of 3 hours a day.

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SOURCE 1 C SOURCE 2 C SOURCE 3 C WEEK TIME

STUDENT PERFORMANCE DATA CARD-REVERSE

SAMPLE 1:

The scores of John's baseball team were 5, 4, 6, 7, and 3. What was the team's average score?

SAMPLE 2:

Find the average of 9, 3, 4, 6, 9, 10, 8.

SAMPLE 3:

Mon. - 20°
Tues. - 22°
Wed. - 18°
Thurs. - 15°
Fri. - 14°
Sat. - 21°
Sun. 23°

Peter measured the temperature every day for a week. The temperatures are shown in the table. What is the average temperature?

	SOURCE	ACTIVITIES
1	S-B 4	280-283
2	A-W 4	212-213
3	H-M 4	280-283
4	L 4	296-297
5	HRW 4	167-169
6	S 4	230-235
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17	Help from teacher	
18	Help from other student	

1. Student name and code number; up to 199 students
2. Teacher name and code number; up to 9
3. Level (grade); up to 9
4. Area (ex., addition); up to 9
5. Performance objective; up to 99
6. Sources used by the student (texts, workbooks, films, tapes, etc.); up to 18 different resources can be coded
7. Week (school calendar); up to 99
8. Time (hours needed to complete unit); up to 9
9. Completed unit (achieved criterion performance); one notch (c) in upper corner if only card used, or one notch (c) after the first, second, or third resource used

The following data will be pre-marked to indicate where card is to be notched to assure accuracy:

1. Level code number
2. Area code number
3. Performance objective code number

The following information will be pre-printed on the card:

1. Level code number
2. Area code number
3. Performance objective code number
4. Summary text material, including: statement of objective, statement of prerequisites and dependencies, and a mini-lesson on the face of the card
5. Sample criterion test items on the reverse side
6. Up to 18 resources (including 12 leading math series) indexed and coded to the objective

The teacher, teacher aide, or student will notch the following data: (regardless of who does the actual notching, the student will always mark the edge of the card to indicate where to punch).

1. Student code number
2. Teacher code number
3. Completed notch--C
4. Sources used
5. Week completed
6. Time needed

The student will write in the following:

1. Student name
2. Teacher name

3. Code number of sources used
4. Circle a "C" to indicate which source was last used to achieve criterion and thus to complete lesson
5. Week when completed
6. Time needed to complete lesson

How a Student Would Proceed

As shown in the preceding illustration, each objective card has a statement of the performance objective, prerequisites to the unit objective, and a synoptic "mini-lesson". On the reverse side, sample criterion items that will be on the performance test are given, along with cited resources and the activities within the resources that support the sample test items.

The flow chart on the facing page depicts the components of the system and the process followed by the student while interacting with the system. The best way to learn about the system is to follow a hypothetical student through the process from start to finish

1. A student's initial point of entry into the program is determined by a diagnostic placement test that is keyed to the performance objectives sequence provided.

   The placement test determines entry points in nine separate areas:

1. Numeration	4. Multiplication	7. Mixed Operation
2. Addition	5. Division	8. Measurement
3. Subtraction	6. Fractions	9. Geometry

2. The student usually starts in the area in which he performs at the lowest level. However, final choice is usually agreed upon by student and teacher.

3. The student then selects from the file the set of performance objective cards that he is to work on first, perhaps a total of 4 to 7 cards.

   Starting with the lowest level objective (the objectives are sequentially coded), he first reads the stated objective, the prerequisites and related concepts, and the mini-lesson (a lesson summary with illustrative examples). Turning the card over, he then can try the samples of the test items he will find on the criterion test for that performance objective. The answers to the sample test items are given in the back of the student test booklet.

4. If, after having gone this far, he feels confident of his ability to handle the criterion test, he may proceed directly to take the test with no further study.

The teacher may correct the test or allow the student to do so. If the student achieves the level of performance specified for the objective, he has completed the unit.

5. If the student does not feel ready to try the performance test after looking over the mini-lesson and trying the sample test items, or if he fails to pass the criterion test on his first try, he should then work with one of the cited optional resources to prepare himself for the criterion test. Here again, the student decides what to do with the resource material and how much preparation he needs.

6. If, after engaging in the activities cited for one of the resources listed on the card, he still fails to reach criterion on the performance test, he can either work more with the original resource or he can try one of the other sources. (It is hoped that, in addition to the main text, the classroom will be provided with a mathematics library containing two or three books of several of the cited resources.) When he feels adequately prepared, he takes the alternative form of the criterion test.

   If he again fails to reach criterion, he should turn to the teacher to decide on his next step. This situation should not arise too often since the teacher would probably intervene to help the student when he senses the student is having difficulty, or when asked.

7. Once the student has passed the criterion test and completed the unit, he notches the card to record his performance. The performance data card then goes to a file where the "completed objectives" cards are filed for reference.

   To complete the data card he notches the following: the "completed notch" (C) in the upper corner if he used only the card and no other resource, the week he completed it, the number of hours it took, his choice of sources to reach criterion (such as #2 or #4), the "completed notch" (C) after the resource that enabled him to pass the criterion test, his code number, and the teacher's code number. He would also write in his and his teacher's name.

8. Although, in the majority of cases, a student usually proceeds through the hierarchy of objectives as sequenced, there can be some flexibility of choice as to the sequence he follows, both verically and horizontally.

   Of course, the degree of dependency on prerequisites varies among the objectives and, where the dependency is high, the prerequisite objectives that must be accomplished first will be indicated. Where there is little or no dependency on other objectives, no prerequisite objectives will be cited. To give the student additional freedom of choice, the hierarchy of objectives will be cross-referenced horizontally across the nine subject areas. Thus, a student can, for instance, move from addition into a corresponding level in multiplication or geometry when he so desires.

Origin of the Objectives

The objectives that form the basis for the system are stated in terms of learning outcomes or expected behavior in applying the lesson content. The objectives are adapted from three curriculum research projects, PRIMES, IPI and IMS. The adaptation was made by Sif Wiksten, who has previously worked as curriculum designer and program writer in mathematics for Responsive Environments Corporation.

PRIMES, Pennsylvania Retrieval of Information for Mathematics Education System, was developed under the direction of Emmanuel Berger and Doris Creswell for the Pennsylvania State Department of Public Instruction. The system's aim was to develop a comprehensive structure for a mathematics curriculum and to relate materials based on that structure. The comprehensive sequence of objectives were developed by a team that included Joseph, Lipson, Lee Boyer, Joy Mahachek, and Edith Kohut.

IPI, Individually Prescribed Instruction, developed at the Learning Research and Development Center at the University of Pittsburgh, Pennsylvania, is an individualized mathematics program consisting of individual lessons which are prescribed to students on the basis of results of diagnostic testing. The system was developed under the direction of John Bolvin. Joseph Lipson, Richard Cox, Edith Kohut, and Julia Vargas were main contributors to the development of the program.

IMS, Individualized Mathematics System, is currently under development at the Educational Regional Education Laboratory for the Carolinas and Virginia, under the direction of Frank Emmerling. IMS is an adaptation of IPI and uses objectives which are derived from both the PRIMES and IPI programs.

The design and development of the ICP system for individualizing learning is under the direction of Coit Butler, formerly a senior research scientist with the American Institutes for Research, Pittsburgh, Pennsylvania, where he directed several comprehensive individualized curriculum development projects.

SAMPLE OBJECTIVES

LEVEL - 4 OBJECTIVES

AREA-5

DIVISION

1. Divides any whole number dividends by a one, two or three digit divisor (with or without remainders) and checks the quotient.

   1a Divides a two or more digit number (with or without remainder) and checks the quotient.

2. Rounds dividends and divisors in order to estimate quotients.
3. Uses the distributative principle to simplify division problems for two or three digit dividends and two digit divisor.

LEVEL - 4 OBJECTIVES

AREA-5

DIVISION (continued)

4. Given any whole number, states whether or not it is divisible by 2, 3, 4, 5, 6, 9, or 10.
5. Solves division problems written as fractions.
6. Divides any decimal fraction (to thousandths) by a single digit whole number and checks the quotient by multiplication (no remainder).
7. Solves two-step word problems with division skills to this point. Selects manner of writing remainder according to nature of the problem.
8. Writes a remainder for a division problem as a fractional part of the divisor, reduced to lowest terms.
9. Performs simple division problems with whole numbers divided by fractions, using aids.
10. Computes average of two or more numbers in numerical problem form or word problem form.
11. Makes a frequency distribution for statistical information and finds the measures for central tendency (mean, median, and mode).

Part B: Pricing Arrangement and Budget Presentation

I. Pricing Arrangement:

II. Estimated Budget:

I. PRICING ARRANGEMENT

The Objectives, Guarantees and Cost Implications have been reported in the section of that title in Chapter II, TECHNICAL APPROACH. The parts of those sections of greatest relevance are quoted here along with a summary and illustration of the pricing arrangement.

A. Payment on Basis of Achievement of Terminal Objectives

The terminal objectives are to be measured by established standardized tests to be selected by agreement between the contractor and the school district project managers. We recommend the use of the Stanford Achievement Test or the California Reading Test. The two major objectives are broadly defined as Reading Comprehension and Total Reading as indicated by the achievement test scores. The base flat fee for the delivery of these objectives in accord with the conditions described below is 75% of the total average maximum allowable per student i.e. $63.75

Condition 1: the mean achievement scores for 80% of the pupils with 90 IQ's or better will be one year's increase in the first six months.

Condition 2: the mean achievement scores for 15% of the pupils with 90 IQ's or better in one year will be 1.5 year's increase.

Condition 3: for pupils in the 70 - 90 IQ range, the mean achievement scores will show one year's growth in one year.

Contingencies:

1. For Condition 1, above, a bonus of $4 will be paid above the flat fee for each pupil for each month gained above that indicated.

2. A deduction of $4 will be made from the basic fee under Condition 1 for each pupil for each month below the base of one year gain in six months.

3. A bonus of $4 will be paid above the the flat fee per pupil for every month gain above 1.5 years gain in one school year under Condition 2.

If a student attains the specified objectives, within the conditions and contingencies stated the reimbursement to the contractor will be $63.75 (75% of $85.)

Bonuses and penalties will be applied in the attainment of the terminal objectives as described under Contingencies. To illustrate for Condition 1, if a student achieves 1.3 years growth the contractor will be paid $75.75 ($63.75 + $4 X 3). Conversely, if a student gains only .6 year growth, under Condition 1, the payment to the contractor will be paid $47.75 ($63.75 - $4 X 4).

B. Payment on Basis of Achievement of Interim Performance Objectives

Included in the APPENDIX are several of the interim behavioral objectives to be used in the High Intensity Learning Centers. These objectives are samples taken from our comprehensive banks of several hundred objectives in reading developed and compiled by LRA-UEI personnel. The specific list of interim objectives to be used is subject to agreement as a result of consultation with each school system's project manager. The contractor guarantees each pupil will demonstrate proficiency on a battery of objectives

selected individually for each pupil based on his in-take diagnosis for a flat fee of $21.25.

Contingencies:

1. For each objective over the basic battery in which each pupil demonstrates proficiency, the contractor will be awarded a bonus of $2 over the flat fee of $21.25.

2. For every objective under the basic battery in which the pupil does not demonstrate proficiency, a penalty of $2 will be deducted from the flat fee.

If a student attains the complete battery of objectives specified for him, as evidenced by his performance on criterion referenced tests administered throughout the year, the contractor will be paid $21.25 (25% of $85).

Incentives and penalties will be applied in the attainment of the interim objectives as described under Contingencies above. To illustrate in the case of a student who fails to achieve four objectives of a possible total battery of 40 to 50 objectives the contractor will be paid $13.25 ($21.25 - $2 X 4). Conversely, if a student achieves four additional objectives the contractor will be reimbursed $29.25 ($21.25 + $2 X 4).

It is acknowledged that the total reimbursement for all of the students (2250) involved in this project on an average maximum basis cannot exceed $85 per student.

Learning Research Associates, Inc.

II. Estimated Budget

Item	Start-up		
	Nonrecurring	Recurring	Operational
Administration[a]			
Salaries	9,125	3,175	4,075
Equipment (depreciation)		500	
Materials & supplies			
Consumable		150	
Nonconsumable	150		
Telephone & correspondence	100	150	
Travel (including local and subsistence[b])	4,650	1,340	1,100
Renovation & furnishing of centers (18)	18,000		
One Mobile Center (Jacox Junior High)		4,000[c]	
Subtotal	32,025	9,315	5,175
Instructional			
Salaries (local field supervisors)			24,000
Equipment (18 centers)[c]	3,000		
Materials and supplies			
Consumable			16,200
Nonconsumable			64,800
Telephone & correspondence			100
Travel (including local and subsistence)			2,000
Testing and measurement			
Salaries	1,500		
Materials			
Consumable	300	200	
Nonconsumable	300	200	
Total	37,125	9,715	112,275

[a]Includes monitoring and support by LRA-UEI personnel.

[b]Includes administrative costs of teacher training.

[c]Leased equipmant; first year's leasing may be applied to purchase.

III. Total Costs

Exclusive of General and Administrative Expenses	159,115
G & A (10% of above)	15,911
	175,026
Fee: 10% of Total Costs (Exclusive of G & A)	15,911
	$190,937

Appendix B

PURCHASE AGREEMENT BETWEEN VIRGINIA DEPARTMENT OF EDUCATION AND BUREAU OF EDUCATIONAL RESEARCH, UNIVERSITY OF VIRGINIA, FOR EVALUATION AND RESEARCH SERVICES

AN AGREEMENT TO PURCHASE RESEARCH SERVICES AS EVALUATION CONTRACTOR TO THE PERFORMANCE CONTRACTING PROJECT

Through this agreement made by the Virginia Department of Education, hereinafter referred to as the party of the first part, on this the first day of October, 1970 with the Bureau of Educational Research in the Curry Memorial School of Education of the University of Virginia, hereinafter referred to as the party of the second part as well as the outside evaluation contractor; the party of the first part agrees to purchase evaluation and research services from the party of the second part designed to evaluate performance contracting in reading in selected divisions throughout the state.

The evaluation services by the party of the second part are: (1) to be generally supervised by the project coordinator in the State Department of Education and (2) to be conducted in cooperation with the local educational agencies and Educational Turnkey Services Inc. employed by the State Department of Education as the middle-management group in the performance contracting project.

The Bureau of Educational Research as outside evaluation contractor agrees to provide the following services:

I. Since the instructional contractor has the right to approve which levels of tests will be administered to each of the experimental groups, the Bureau of Educational Research will determine on the basis of existing data and test background and experience criteria for test level assignment and submit this criteria to the instructional contractor for approval subsequent to prior approval by the SEA project coordinator.

II. Conduct pre and post testing of experimental and control groups to include:

(a) selection of a minimum of three nationally standardized reading achievement tests, different levels and forms, "masked" for evaluation security

(b) management and monitoring of test administration to the already specified experimental group and to the control group to be selected by the Bureau of Educational Research

(1) make evaluation arrangements in the school divisions
(2) recruit, preservice, and supervise testors
(3) arrange to provide follow up pre and post testing of absentees

III. Scoring, reporting, and certifying pre and post testing on an individual pupil basis for the following purposes:

(a) to provide verification data via pre testing on reading achievement status on the experimental and control groups including, where necessary, administration of a quick scoring IQ test

(b) to provide via pre and post testing baseline reading achievement data on experimental and control groups

(c) to provide via pre and post testing differential evaluation data in terms of grade equivalent gains for purposes of contract payment

(d) to provide follow-up retention testing in the school year 1971-72 on a sample of the experimental population

IV. Conducting the following types of interim evaluation:

(a) evaluate appropriateness and validity of objectives and test items submitted by the instructional contractor

(b) select, develop and print four tests based on the objectives and test items for "interim" reading achievement testing to measure progress of the experimental group and, in part, to provide data for the determination of contract payment

(c) to supervise and monitor the administration of and to score and certify and results of the four interim reading tests

(d) to develop and conduct other evaluation techniques that will provide information on the affective status of the experimental and control pupils as well as information about pupil-parental-teacher and administrator reactions to the instructional program

(e) to counsel the SEA project coordinator at his request whenever it becomes necessary to decide on the eligibility of pupils to continue in the performance contracting program

VI. Prepare and submit to the project coordinator for the SDE a comprehensive evaluation report to guide both the State Department of Education and the State Board of Education in reaching a decision on subsequent performance contracting in the state.

V. To conduct periodic observation for evaluation purposes the instructional contract program as it is conducted with the experimental population in various school divisions.

In order that the party of the second part may be able to provide the aforesaid services, the party of the first part agrees to reimburse the party of the second part not more often than monthly a sum not to exceed a total of the bases of such reimbursement to be mutually agreed upon.

The party of the first part expects the party of the second part to begin work on this evaluation contract not later than October 1, 1970 and to complete it not later than July 31, 1970. It is mutually agreed that the party of the second part furnish

the party of the first part a schedule of dates for the conduct of each evaluation phase of the project and that this schedule will be subject to approval of the SEA project coordinator.

The party of the first part reserves the right to make the only release of the evaluation findings of this project with credit to the Bureau of Educational Research, School of Education, University of Virginia.

Director, Bureau of Educational Research University of Virginia	Special Assistant for Federal Programs State Department of Education
Date_____	Date_____

Appendix C

CONTRACT WITH LRA

AGREEMENT entered into this 23 day of November 1970 by and between Norfolk City Schools a duly established school district of the Commonwealth of Virginia (hereinafter referred to as LEA), and LEARNING RESEARCH ASSOCIATES, INC., a Corporation duly organized and existing under and by virtue of Laws of the State of New York (hereinafter referred to as the "Contractor").

W I T N E S S E T H

WHEREAS the State Education Agency (hereinafter referred to as SEA) has expressed interest in, and given encouragement to, a performance contracting project in reading, being conducted with Title I (Elementary and Secondary Education Act) funds on a demonstration basis by several

localities in the Commonwealth of Virginia during the school year 1970-71, and,

Whereas the Local Education Agency (LEA) recognizes its duty to improve the reading skills of students who are now below standard,

Whereas the project shall continue for the 1970-71 academic year, consisting of approximately 150 class periods of instruction in reading. Management support will be provided to the LEA and the entire project will be evaluated.

Whereas the references for parties involved in the project are:

Contractor -- Learning Research Associates, Inc.

LEA -- Local Education Agency, the fiscal agent as designated by Title I ESEA Legislation

SEA -- State Education Agency

Project Coordinator -- SEA representative

Project Director -- LEA's representative

Project Administrator -- Contractor's representative

Management Support Group -- Education Turnkey Systems, Inc.
Principal offices: 1660 L St. N.W., Washington, D.C.

Evaluation Contractor -- Bureau of Research, School of Education, University of Virginia, Charlottesville, Va.

NOW, THEREFORE, it is agreed by and between the parties:

1.01 The term of this Agreement shall be from the date hereof up to and including June 30, 1971.

1.02 The parties hereto understand and agree that this Agreement is conditioned upon the signing of a Letter of Agreement between the SEA and the Contractor regarding the availability of the Title I funds aforementioned.

1.03 The Contractor agrees to provide High Intensity Learning Centers (hereinafter referred to as the Program) for students deficient in reading, presently enrolled in public schools of the LEA.

1.04 The Program shall consist of approximately 150 class days, each period being of approximately one hour in length, through the academic school year 1970-71.

The Contractor shall:

- Organize and operate the Program in reading
- Install the Program
- Monitor and supervise the Program
- Train the teachers who are selected for the Program and orient management staff selected by the LEA.
- Assist and guide the teachers in the operation of the Program.
- Review the performance of the students enrolled in the Program.
- Recommend alternative approaches with regard to the performance of each of the students enrolled in the Program.
- Instruct the teachers assigned to the Program in the use of the hardware used in the Program, including but not limited to, tape recorders and reading devices.
- Create the special environment necessary for the intensive learning

provided by the Program.

. Submit an acceptable Management Plan to the LEA and Management Support Group for their use in monitoring the Program.

. Provide draperies, area carpet and air conditioning in accordance with the Contractor's proposal dated August 13, 1970.

1.05 MOREOVER:

. Contractor agrees to cooperate fully with other contractors of the SEA which are responsible for tasks and activities directed or approved by the SEA for ensuring the success of this project. Contractor will provide necessary information for such parties on a timely basis and during on-site visits.

For the purpose of the turnkey analysis, Contractor shall maintain records to reflect all actual start-up and operating costs in accordance with reporting forms and procedures, and at specified intervals required by Project Coordinator, as established by the Management Support Group, Education Turnkey Systems, Inc., and LEA.

. Contractor agrees to supply ..... all data and other information required by the Project Coordinator with a copy to the LEA for the reporting system and for other uses in a manner reflecting the overall quality of form and substance which can be expected of the Contractor.

. Contractor further agrees to maintain sufficient personnel and equipment required over the full contract period to assure the

maximum possible educational development and supervision of each student.

1.06 LEA agrees to

. maintain an information exchange jointly developed with Contractor involving teachers, counselors, consultants, and parents.

. host visitors to the program on a pre-determined schedule and in accordance with procedures approved by the Project Coordinator and LEA in order not to interfere with the reasonable operations of the Program or the LEA.

. to be responsible for ensuring that any student enrolled in the Program and attending school on a given day will attend the Program,

. shall arrange scheduling of classes, where appropriate, to facilitate student attendance, and

. make replacement students available whenever they are needed.

1.07 MOREOVER:

. LEA agrees to maintain, clean and repair in a manner and with the level of effort exerted elsewhere in the school, the premises, fixtures, furnishings and non-instructional equipment occupied, owned or controlled by the Contractor.

. LEA agrees to provide reasonable security for the premises occupied by the Contractor and further agrees to provide at least one person two hours a day to perform clerical work. Schedule of the clerical services to be performed shall be mutually agreed to by

the parties hereto.

. LEA shall owe the same duty of care and responsibility to student participants in Contractor's instructional components whether operated during or after regular school hours, as it does to those same students when in regular classroom situations.

. LEA agrees to be responsible for ensuring that any student enrolled in the Program and attending school on a given day will attend the Program, and shall arrange scheduling of classes, where appropriate, to facilitate student attendance. Transportation, if necessary, of the students shall be provided by the LEA. Such transportation shall be the transportation ordinarily provided by the LEA.

. LEA agrees to pay to the Contractor the cost required for Contractor to obtain liability insurance on students participating in High Intensity Learning Centers. This cost is not to exceed $1.89 per student x 250 students. This insurance will render harmless Norfolk City Schools to any claim or action resulting from this Program. The insurance policy shall be purchased by the Contractor and any liability of the Program shall be the responsibility of the Contractor.

1.08 It is understood and agreed by both parties:

. After-school project operating hours shall be jointly established by LEA and Contractor, where appropriate and reasonable, to allow students who have been absent to complete the work they have missed.

. The teachers involved in the Program should devote their full time to it, and agree to use their best efforts in regard to same.

. It is understood and agreed that all teachers participating in the Program described herein shall remain employees of the LEA and shall not be considered agents, employees or servants of the Contractor or its designees. LEA and the participating teachers understand and agree that in order to effectively execute the Program created, designed and administered by the Contractor, directions for the proper implementation of said Program must come from the designee of the Contractor and the teachers concerned agree to follow the directions regarding the operation of the Program.

. The Contractor agrees that it will abide by the general rules and regulations of the school board.

. The Contractor shall reimburse the LEA for the payments made by the LEA to the substitute teachers employed by the LEA during the training of the teachers selected under this Program.

. The LEA agrees to provide the Contractor with a statement of the rate paid to the substitute teachers employed by the LEA during the training of the teachers selected under this Program.

. The LEA agrees to provide the Contractor with a statement of the rate paid to the substitute teacher(s), but in no event shall any payment made by the Contractor exceed the sum of $35 per day.

. As set forth in the Contractor's Proposal dated August 13, 1970, the Contractor shall provide one week of training in the Program for each of the selected teachers.

. The Contractor may not release test results or cause them to be made

public in any way except with written permission of the LEA and approval by the Project Coordinator.

. A pre-audit of the Contractor's instructional program may be performed prior to but not later than December 7, 1970, to determine that standardized test items are not included in the curriculum, with continuing audits to be performed thereafter.

1.09 Selection of Students:

. Students who are potential participants or have been selected for this Program will have grade level deficiencies in reading as determined by any one of three nationally normed, standardized, commercially available achievement tests nominated by the Contractor and selected by the Evaluation Contractor and administered by the Evaluation Contractor or his designee within 12 school days of the commencement of the Program. Deficient students on this test will be assigned to the Program, except such pupils who are excluded by the Project Director on account of handicapping conditions. For those students and any replacement students who are placed in the Program within thirty days of the above testing, those test scores shall be used as the pre-test for payment purposes, as provided above.

. In the St. Helena School, there will be 125 students deficient in reading, approximately 35 from grade 4, 35 from grade 5, and 50 from grade 6, available for entry into the ALAC on November 3, 1970. There will also be a pool of approximately 50 students deficient in reading available as replacements.

. In the Jacox School, there will be 125 students deficient in reading, approximately 50 from grade 7, 40 from grade 8, and 35 from grade 9, available for entry into the ALAC on October 19, 1970. There will also be a pool of approximately 50 students deficient in reading available as replacements.

2.01 During the first ten school days in which a student participates in the Program, that student shall receive diagnostic testing by Contractor to determine individual treatment. If, during that ten school day period, Contractor states in writing to the Project Director that the student is not qualified to participate because of emotional or mental reasons unrelated to standardized test results, the Contractor may request the student's removal in writing to the Project Director If the matter is not resolved within two days, the Project Director shall notify the Project Coordinator and upon the Project Coordinator's determination, an individual test will be administered, at the cost of the Evaluation Contractor, to that student by a qualified professional employed and/or designated by the Evaluation Contractor who shall then make a recommendation to the Project Coordinator. In all cases, the Project Coordinator's decision on student participation shall be final and binding. Those students remaining after the ten school day period shall remain in the Program for the full number of class days normally scheduled for the school for all students.

2.02 For the purpose of this contract, the following are the only reasons for a student's leaving the program: commitment to institutional

care precluding attendance in the Program; removal from the school district; induction into the armed forces; illness or incapacitation for a continuous period of ten school days or for intermittent periods totaling fifteen days in any three-month period; if parents or guardian request removal; removal of student as a direct result of court order; or if the student reaches seventeen years of age or withdraws for severe financial reasons. If a student drops out for any reason other than the above, the LEA is not obligated to provide a replacement. In all cases, Contractor shall give written notice to Project Director when in its opinion a student's absences warrant removal from the Program. Project Director shall, if possible, obtain a written statement from the parent or guardian as to the reason for the student's removal from the Program. The Evaluation Contractor shall certify the validity of the cause of the student's withdrawal from the Program. LEA will furnish daily to the Center Teacher the names of any students absent from regular classes. The Center Teacher will furnish to the LEA a daily list of students absent from the Program. LEA shall use the same efforts and procedures as are used for all other students in the school district to ensure regular attendance and attendance at make-up and at future sessions.

2.03 If a student leaves the program, it shall be certified in writing to the Contractor by the Project Director. A replacement will be selected from the pool by the Evaluation Contractor within three school days and placed in the Program within two additional school days by

the LEA. Replacement students placed in the Program after thirty calendar days from the date of pretesting shall be tested again upon entry into the Program. No replacements shall be made later than thirty days before the end of the project. If the pool needs to be increased, students will be selected for inclusion on the same basis as students were originally selected. Final decision on replacements rests with the Project Coordinator.

3.01 Testing of student progress under the authority of the Project Coordinator or its designee shall follow the procedures described below.

. Project Coordinator with the advice of the Management Support Contractor and the Evaluation Contractor shall jointly select and/or approve three commercially available, nationally normed, standardized reading tests or subtests.

. Within twelve school days of the Contractor's first day of classes, Evaluation Contractor shall administer the three tests, one test per student, to the appropriate grade levels. Contractor shall not be told, nor shall he attempt to determine in any manner whatsoever what test or what form of what test any student received. Contractor shall be informed by the evaluation contractor five days prior to the pre-test of the level of the test to be used for each grade level involved in the project. Contractor shall be informed by the evaluation contractor of each student's pre-test grade level score within 16 school days of the administration of the tests in each

district.

No sooner than 12 days prior to the Contractor's last day of classes, Evaluation Contractor or designee shall administer the post-test to each student. The post-test shall be a different form of the same test that was administered to the student as the pre-test. LEA will certify the conditions of the testing in writing in a format to be supplied by the Management Support Group as approved by the Evaluation Contractor. In the event that the parties hereto, along with the Evaluation Contractor, mutually agree that the conditions of testing for payment purposes, administered by the Evaluation Contractor, are not reasonably satisfactory nor comparable, a re-test will be administered.

Prior to the post-testing, the Contractor shall not be told, nor shall he attempt to determine in any manner whatsoever, what test or what form of what test any student shall receive. Entry and exit level of each student participant will be determined by pre- and post-test scores on any one of three nationally normed, standardized, commercially available achievement tests administered at the beginning and end of the project by the Evaluation Contractor which shall supervise these and all other evaluation tests. Such tests will be the basis for determining student achievement gains and Contractor reimbursement as provided herein. No information whatsoever shall in any way be disclosed to Contractor as to what test or forms of the test have been or will be used.

3.02 The Evaluation Contractor shall administer and/or supervise the interim assessment tests.

. The Contractor shall submit no later than November 23, 1970 to the Evaluation Contractor the test items it proposes to use for each Interim Test, #1 through #4. Contractor shall indicate the objectives to be assessed and the relationship of the objectives to the Contractor's curriculum. The Contractor shall submit no fewer than three test items for each objective.

. The Evaluation Contractor shall certify to the Project Coordinator that the objectives to be assessed are a fair measure of the Contractor's Program and the achievement potential of the students.

. If the above requirements are not met to the satisfaction of the Evaluation Contractor, he shall make recommendations for improvement in writing to the Project Coordinator and the Contractor.

. The Project Coordinator with the assistance of the Project Director shall suggest to the Contractor a remedy to the conditions complained of. Within two working days the Contractor will notify the Project Coordinator of corrective action taken, if any. The Project Coordinator shall have five working days within which to approve or reject the corrective action, if any.

. At the conclusion of the period of ten working days from date of first notice to the Contractor, the Project Coordinator must either certify that the pool of interim performance objectives is approved or that he rejects the corrective action. If the Project Coordinator

fails to take any action, then certification of the pool of interim performance objectives shall be deemed to be made effective as of the tenth working day after notice and payment shall be made in accordance with paragraph 4.05.

. If the Project Coordinator and the Contractor fail to reach agreement with regard to any of the above, then the appeal procedures set forth in paragraph 7.01 shall apply, except that the LEA will select the party jointly with the Evaluation Contractor.

3.03 . The test question item pool procedures and the use of a variety of standardized tests is intended to prevent affirmative influencing of student performance on standardized, norm reference tests by foreknowledge of questions to be asked, commonly called "teaching to tests." Suspicion that such an event has been attempted or accomplished shall be stated in writing by any parties to this contract and project to the Project Coordinator and communicated to the Management Support Group. Project Coordinator and members of the Title I staff of the SEA or its designees shall visit the project site and determine the validity of the charge, the number of participants affected, and whether any damage was caused. The Project Coordinator shall then make findings and recommendations to the Project Director and the Contractor. The Contractor has the right to object to any of the findings reached by the Project Coordinator.

. If the parties fail to reach agreement the appeal procedure shall

apply and the project shall continue pending final determination of the appeal.

. The Project Director shall have the authority to terminate the project for cause at that point and to require the Contractor to return all funds paid him by the LEA.

4.01 The total amount to be paid to the Contractor shall be based on the performance of each of the students enrolled in the Program. The performance of each of the students is based on both interim performance tests as defined herein and upon a pre- and post-test as defined herein. The pre-test aforementioned shall be administered within twelve days of the beginning of the Program and the post-test shall be administered within twelve days of the completion of the Program.

4.02 Payment on Basis of Standardized Test Results.

. The average maximum unit final payment the Contractor shall receive for student achievement measured by pre- and post-test scores on national standardized tests shall not exceed $63.75 per student, or a total amount based on pre- and post-test results for all students on standardized tests not to exceed $15,937.50 for 250 students.

. Determination and calculation of payment shall be made on the basis of a pre- and post-test as defined herein:

$63.75 per student enrolled in the Program for the full term of instruction who achieves a reading grade level increase of 1.7 grade level gain as reported by the standardized tests to be utilized under the terms of this contract.

- In the event that a student exceeds the grade level gain of 1.7, the Contractor shall be credited in the determination and calculation of payment with the sum of $4.00 for each 0.1 grade level gain above 1.7 as reported by the standardized tests to be utilized.
- In the event that a student does not exceed the grade level gain of 1.7, the Contractor shall have deducted in the determination and calculation of payment the sum of $4.00 for each 0.1 grade level below the 1.7 gain.
- In the event that a student leaves the Program prior to completing the Program, and has no post-test score, the calculation for payment will be determined as follows:

  The amount paid to the Contractor for the average student achievement in the same grade level, multiplied by the ratio of the number of completed instructional periods by the student who leaves, to the total number of periods actually provided to the grade level of the withdrawing student, through the entire term of instruction.
- In the event that a student leaves the Program after at least thirty periods of instruction and is pre- and post-tested, the Contractor will be paid an amount equal to the projected gain that the student would have achieved had he completed the program prorated on the basis of the actual number of periods spent in the program.
- Determination and calculation of payment with regard to students who have I.Q.'s of 74 or below, as determined by any standard or acceptable test to the Evaluation Contractor, administered by the LEA or

its duly authorized designee, shall be based on the determination and calculation of payment set forth in the foregoing paragraphs. However,, the grade level gain set forth in those paragraphs is changed for the purposes of this paragraph from a grade level gain of 1.7 to a grade level gain of 0.4.

4.03 Payment Based on Interim Performance Tests.

. The Contractor agrees to accept credit for payment on the basis of the success or failure of each student's performance on a battery of objectives approved by the Project Coordinator, in consultation with the Evaluation Contractor, and selected individually for each pupil based on his diagnosis. The total payment for performance on interim performance tests for all of the 250 students involved in this project shall not exceed $5,312.50.

With regard to the interim tests, the following is the basis of calculation of the amount to be paid to the Contractor herein.

. After a student correctly answers 85% of the test items on each interim objective prescribed by the Contractor and approved by the Evaluation Contractor as stated herein, the Contractor shall be credited in the determination and calculation of final payment the sum of $21.25.

. In the event that a student answers correctly more than 85% of the test items on the interim objectives in excess of those originally prescribed and approved, then the Contractor shall be credite . in the determination and calculation of payment with the sum of $2.00 for

each of those interim objectives in excess of those originally prescribed by the Contractor and approved by the Evaluation Contractor.

. In the event that a student fails to answer correctly 85% of the test items on the interim objectives described above, then there shall be deducted in the determination and calculation of payment to the Contractor the sum of $2.00 for each objective below those originally prescribed by the Contractor and approved by the Evaluation Contractor.

. If a student leaves the Program at any time prior to completion of the Program and fails to complete the four interim tests, the calculation of payment shall be as follows:

The amount credited for the average student achievement attained by students in the same grade level as the withdrawing student, multiplied by a ratio of the number of instructional periods actually attended by the withdrawing student to the total number of periods actually provided to the grade level of the withdrawing student, through the entire term of instruction.

4.04 Within twenty days of the completion of the Program, a detailed certified statement shall be submitted to the Contractor and the LEA by the Evaluation Contractor. The statement shall be supported by data reflecting the aforementioned calculations and determinations. The statement shall clearly disclose the amount, if any, to be paid to the Contractor by the LEA, or the amount to be paid to the LEA, if any, by the Contractor. Contractor reserves the right to inspect the test records and supporting data, including raw scores and documentation.

Payment shall be made in any event within thirty days after the statement is received by the Contractor or LEA.

4.05 LEA agrees to pay the Contractor the total sum of $17,000 payable in six equal installments, each to be paid within seven (7) days after the LEA school board meeting immediately following the occurrence of these events:

a) The approval by the Evaluation Contractor of the interim performance objectives and the test items pertaining thereto submitted by the Contractor.

b) Determination by LEA that at least 50% of the participating students are receiving instruction under the provisions of this Agreement.

c) Administration by the University of Virginia, School of Education, Bureau of Research or its designee of the four interim tests which shall take place within seven days of the following dates:

Interim Test #1 -- December 16, 1970
Interim Test #2 -- January 28, 1971
Interim Test #3 -- April 14, 1971
Interim Test #4 -- June 15, 1971

It is understood that the aforesaid sum of $17,000 constitutes 80% of the average maximum total sum which equals the total sum of $21,250, based on the enrollment in the Program of 250 students.

4.06 . If the LEA does not provide the stipulated number of students (250) within ten school days after the Contractor's Program is operational, the Contractor shall be credited with the sum of $85.00 in the determination and calculation of payment per student vacancy. If

LEA provides a replacement in the Program after the ten day period, the credit of $85.00 will be prorated in accord with paragraph 4.02 and 4.03.

. In the event a replacement student enters the Program, the basis for determination and calculation of payment shall be the same as in paragraph 4.02 and 4.03 for the pre- and post-test scores and for the interim tests.

4.07 In the event that 150 days of instruction are not available for Program operation due to: a) insufficient number of school days remaining in the regular school year; b) testing time required by the Evaluation Contractor; or c) any event beyond the control of the LEA which precludes the LEA from making students or Program facilities available to the Contractor, the procedure for determining and calculating credit for payment will be as follows:

the grade level gains specified in paragraph 4.02 of 1.7 or 0.4 grade level gains will be multiplied by a ratio of the number of days between the opening date of the Program and the date of the regularly scheduled post-test less any other days subtracted due to conditions "a", "b", and "c" described above to 150 days. The grade level gain obtained and described in this paragraph shall be substituted in paragraph 4.02 for the grade level gain 1.7 or 0.4 contained therein and the determination and calculation of payment shall be made as provided for in paragraph 4.02. The opening date of the Program will not be later than November 4,

1970.

5.01 Contractor certifies that the instructional system, materials, and equipment to be used in the project are the same as, or do substantially duplicate, those listed or otherwise identified in its response dated August 13, 1970 to the RFP dated July 13, 1970.

5.02 If, during contract period, Contractor wishes to change the instructional system, materials, equipment used, or personnel requirements, it must notify Project Coordinator of any substantial changes and seek approval in accordance with procedures prescribed by the Project Coordinator, the Management Support Group, and LEA.

5.03 The LEA understands that it may purchase from the Contractor new materials and equipment of the type used in the Program. On its part, the Contractor agrees that it will offer such materials and equipment at a price no greater than offered to its most favored customer. The Contractor hereby grants to LEA the option to purchase all or part of the equipment, materials, and furnishings used by the Contractor in the Program for the amount set forth in the Contractor's Proposal dated August 13, 1970, less 30% depreciation of actual purchase cost. The LEA must exercise the aforesaid option no later than July 15, 1971. Notice of the exercise of the option must be given in writing, addressed to the Contractor at 1501 Broadway, New York, N. Y. 10036. Such writing shall contain a statement by the LEA as to the equipment, materials, and furnishings it wishes to purchase from the Contractor.
In the event that the LEA does not choose to exercise the option, the

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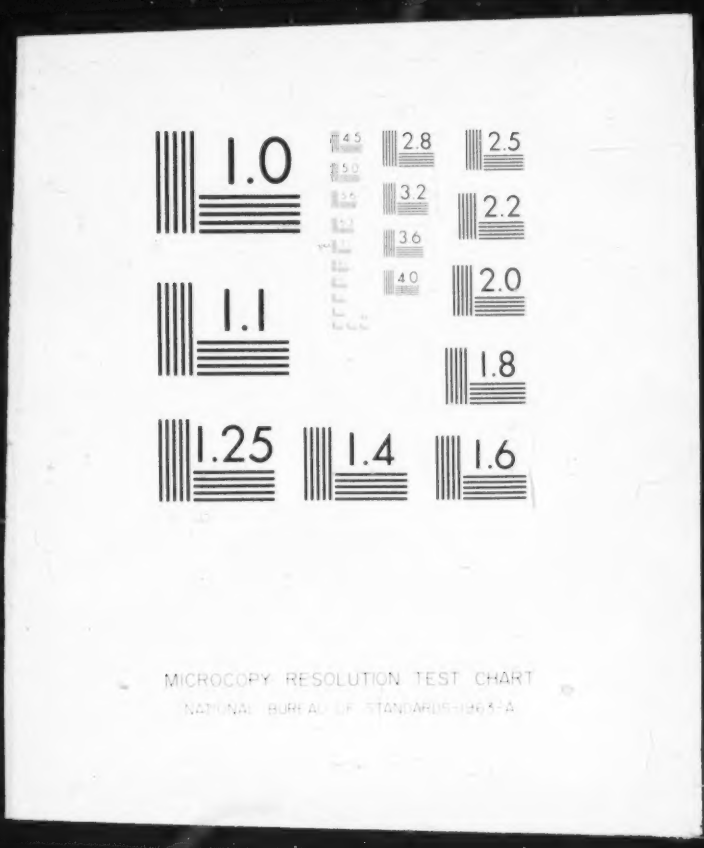

Contractor shall have up to and including August 15, 1971 to remove its property from the premises of the LEA.

5.04 The Contractor guarantees that the Program used during the 1970-71 school year will achieve at least 50% of the cost-effectiveness (as hereinafter defined) during the school year 1971-72 upon the following conditions:

a) that the Contractor, where necessary, provides additional training controls materials used, supervises and monitors the Program, and

b) that the LEA pays for materials and services set forth above.

As used in this paragraph, cost-effectiveness is defined to mean the average per student gain achieved during the school year 1970-71 based on the same achievement tests used during the 1970-71 school year at the same per student cost (student cost is an amount based on the number of students enrolled divided by the actual costs of the Contractor) as during the school year 1970-71.

6.01 All terms, conditions, and provisions hereof shall inure to and shall bind the parties hereto and for each of their successors and assigns. Contractor shall not assign or transfer its interest, responsibility, or claims payable under this contract without prior written consent of the LEA.

6.02 The Contractor agrees within five days of the effective date of this contract to secure the repayment of any money received by the Contractor under this contract, in the event the Contractor does not perform in accordance with the conditions of the contract. Such security must be

acceptable to the LEA.

6.03 LEA may terminate this contract when it concludes that such termination is in the best interest of the LEA. In such event, the LEA shall bear no liability for costs the Contractor incurred related to this project after notice of termination. Notice shall be given to Contractor by means of a registered letter mailed to the Contractor at its office at 1501 Broadway, New York. In the event of such termination before Contractor has offered fifty days of instruction, or in any event if 80% or more of the students cannot be post-tested, Contractor shall be reimbursed based on audited costs incurred, including direct overhead and general and administrative costs up to receipt of notice of termination plus an additional charge of ten percent of the actual costs of the Contractor. In no event will the total cost reimbursement to the Contractor be greater than the total maximum amount stated in paragraph 4.02 and 4.03.

. For the purpose of this contract Direct Costs shall be defined as the expenses incurred and payments made by the Contractor as a result of work, labor and services performed and furniture, fixtures and materials purchased or provided exclusively under the terms of this contract.

. Overhead Costs are herein defined as expenses incurred or payments made which are not directly identifiable with the performance of the contract and may consist of but shall not be limited to the following: bookkeeping, payroll, billing, central office evaluation of the project.

. General and Administrative Costs are defined as the costs of overall management of the corporation.

. In the event that the statement of audited costs submitted by the Contractor is unacceptable to the LEA, then the SEA Title I ESEA auditor will perform an audit whose findings will be binding.

. If after fifty periods of instruction by Contractor more than 80% of the students can be post-tested, Contractor shall be reimbursed on the basis of pre-test, post-test net gain scores as described in paragraph 4.02 and on the basis of interim tests as described in paragraph 4.03.

7.01 Except as otherwise provided, any dispute arising under this contract shall be decided by the Project Coordinator who shall reduce his decision in writing and mail or otherwise furnish a copy to each of the parties hereto. Within ten days of the receipt of such decision the Contractor or the LEA may serve on the other and the Project Coordinator a notice of appeal. Within five days thereafter each of the parties hereto, with the exception provided for in paragraph 3.02 shall select one person who in turn shall agree on a third person who together with the persons selected by the parties hereto shall hear and determine the appeal, a decision of the majority being final. If the person selected fail to agree on a third person the parties hereto shall continue to select individuals until the persons selected are able to agree on a third person.

7.02 The Contractor within 15 days of the effective date of this contract

shall apply in an appropriate manner to the Commonwealth of Virginia to qualify under the laws of the Commonwealth to do business in the Commonwealth of Virginia.

IN WITNESS WHEREOF the parties have signed this Agreement the day, month and year first above written.

Norfolk Public Schools
Commonwealth of Virginia

By_____
Mr. Paul H. Smith
Assistant Superintendent of Finance
Agent--Norfolk City School Board

Learning Research Associates, Inc.

Concurrence _____
Authorized Official

University of Virginia
Bureau of Research
School of Education

By_____
President

AMENDMENT AND MODIFICATION OF AGREEMENT BETWEEN LEARNING RESEARCH ASSOCIATES, INC. AND _____
DATED:

Section 4.02 is hereby amended by adding thereto the following:

"Notwithstanding anything contained herein, any first grade student who is not pre-tested and whose I.Q. is 75 or above must achieve on the post-test a grade equivalent of 2.0. For each child reaching the aforesaid grade level, payment in the amount of $63.75 per student enrolled in the program for the full term of instruction shall be made to the Contractor.

In the event the aforesaid student exceeds the grade equivalent of 2.0 the Contractor shall be credited in the determination and calculation of payment in the sum of $4.00 for each 0.1 grade level gain above the grade equivalent of 2.0 as reported by the standardized tests to be used.

In the event that such a student does not achieve a grade level equivalent of 2.0 the Contractor shall have deducted in the determination and calculation of payment the sum of $4.00 for each 0.1 grade level below the grade equivalent of 2.0.

Notwithstanding anything contained herein, any first grade student who is not pre-tested and whose I.Q. is 74 or below must achieve on the post-test a grade equivalent of 1.4. For each child reaching the aforesaid grade level, payment in the amount of $63.75 per student enrolled in the program for the full term of instruction shall be made to the Contractor.

In the event the aforesaid student exceeds the grade equivalent of 1.4 the Contractor shall be credited in the determination and calculation of payment in the sum of $4.00 for each 0.1 grade level gain above the grade equivalent of 1.4 as reported by the standardized tests to be used.

In the event that such a student does not achieve a grade level equivalent of 1.4 the Contractor shall have deducted in the determination and calculation of payment the sum of $4.00 for each 0.1 grade level below the grade equivalent of 1.4.

Students enrolled in grades 2 and 3 who do not answer any item in the pre-test correctly shall have assigned to them the lowest grade equivalent provided for in the test administered.

With the exception of the students described in the seven (7) paragraphs immediately preceding this paragraph there shall be no re-pre-testing of the students. Enrolled students who were not tested during the pre-test administration shall be deemed to have a score on the standardized achievement test which he would have taken which will be equal to the mean score of those pre-tested students enrolled in the program and on the same grade level and in the same school as those students who are not pre-tested."

Section 2.03 is hereby amended by adding thereto the following:

"Replacement students in the program shall be tested within

seven (7) school days from the date of notification of enrollment in the program given to the Evaluation Contractor."

Section 4.03 shall be modified by deleting in paragraphs 2, 3 and 4 thereof "85%" and substituting "80%" wherever it appears in the aforesaid paragraphs.

Section 3.02 shall be amended by adding thereto the following:

"The center teachers will certify mastery of each performance objective by the student. The date of mastery will be noted on the back of the record form. The Evaluation Contractor may periodically and without announcement, test a sample of students in each center to determine and verify that a stuoent has successfully achieved the objective certified by the center teacher. For this purpose the Evaluation Contractor will use the test items given to it by the Contractor. The Evaluation Contractor will test those objectives achieved by the student within the three-week period immediately preceding the date of such test. Certain performance objectives will be verified by the Evaluation Contractor conducting interviews of the students.

A record of each student's achievement on the interim performance objective shall be kept by the Evaluation Contractor which record shall be signed and certified by an appropriate designee. The record will be available for inspection by the Contractor."

Section 4.05 is hereby amended by adding thereto, following the first sentence of the section which ends with the words "of these events", the words "and these dates".

Section 4.05 is further amended by deleting paragraph (c) thereof ending with the words "Interim Test #4" and substituting therefor the following dates: "December 18, 1970; February 5, 1971; April 2, 1971; and May 28, 1971."

Norfolk Public Schools
Commonwealth of Virginia

By /s/
P. H. Smith
Authorized Official

Learning Research Associates, Inc.

By /s/
Lee D. Brown
President

Concurrence /s/
Charles A. Woodbury, Jr.
Authorized Official

University of Virginia
Bureau of Research
School of Education

Appendix D

COMPUTATIONS FOR TABLE 3, AND ASSIGNMENT AND ANALYSIS OF STUDENT WORK

School	Planning District Number	Portion of Planning District Used	1966 Population	Weight[a]
Campostella Junior High	88	All	1,750	.104
	89	All	5,850	.347
	90	All	9,250	.549
Jacox Junior High	66	1/3	10,800	.318
	68	1/3	1,050	.031
	69	1/3	9,450	.278
	70	1/2	8,350	.373

[a] Weight = percentage of school district population contributed by the given planning district. To compute the value of a given characteristic (such as percentage unemployed) for each school, the value for each planning district was multiplied by the weight for that district. Then all products were summed.

INSTRUCTIONS GIVEN TO TEACHERS FOR ADMINISTERING ASSIGNMENTS

Please follow these instructions exactly so that each class will receive exactly the same assignments.

1. Tell the students that they may take as long as they like to complete the assignment and that it is short enough that they should be able to finish it easily by the end of the class period. All papers will be collected by the end of the period.
2. Tell the students that the assignment will be read to them only once, at the beginning of the class period.
3. Pass out a copy of the assignment to each student.
4. Ask the students to write their answers on the assignment sheets.
5. Read the assignment to the class aloud. Read the poems for assignment No. 2 aloud.
6. Do not allow the students to discuss the assignment with anyone.
7. Collect all papers at the end of the class period.

ASSIGNMENTS

Social Studies

Please answer the questions by writing a short paragraph in the space below each question.

Why was the United States established?

What great Americans have contributed most to the growth of our country?

Why have so many people come to America from foreign lands since even before the United States was established?

English

Write a short paragraph giving your interpretation of the two poems, "Buffalo Dusk" and "Indian Children," on page 7 of your English book.

Math

Joyce is saving money for skates. One week she earned $2.41, the next week, $3.70. Then she spent $1.05. How much money does she still need if the skates cost $12.59?

Please show all work.

GENERAL OBSERVATIONS BY TEACHER WHO SCORED STUDENT WORK

In general, even the "best" papers seemed below fifth-grade expectancy, except in math.

English

Papers ranked from 10 (best) to 0 (worst).
Criteria used (from best to worst):
Generalization, mention of change, or comparison between now and then.
Some general interpretation (i.e., those who saw buffalo = Indians).
Personal interpretation.
Some sentences, not copied.
Copy of poem.
No response.
10-7: Contained at least partial generalities about change.
No No. 6.

The word "interpretation" in instructions to students seemed a poor choice. I assume the teacher *interpreted* the word by saying something about "meaning." If so, I would like to know whether the teacher said, "What do *you* think the poem means?" or "What did the *writer* mean?" If more than one teacher gave assignments, what each said to students would probably influence their response.

"Buffalo Dusk" probably poor choice for interpretation because first two lines sum up meaning. Hard to tell whether student copied two lines or used those two lines as interpretation.

Math

Criteria used (from best to worst):

Correct answer, steps numbered, chronological order, answer labeled.
Correct answer, steps shown, answer labeled.
Correct answer, steps shown.
Correct answer.
Incorrect answer, correct steps, one error.
Incorrect answer, correct steps, more than one error.
Incorrect answer, one incorrect step.
Incorrect answer, partially completed.
Incorrect answer, minimal comprehension.
Incorrect answer, no sign of comprehension.
No work.

These were the easiest to rank, except there were several that had correct answers with wrong work or no work. Suspect copying, but no way of knowing.

Social Studies

Tried to ignore spelling, grammar, sentence structure, but unable not to rank answers in longer, more complete sentences higher.

Tried to consider all answers as a totality.

Criteria used (from best to worst):

Several causes given for 1 and 3 (freedom, laws, rights, land, money, religion) plus several great Americans.
More than one cause for 1 and 3 plus several great Americans.
Freedom *or* laws *or* rights mentioned plus several great Americans.
Some sort of answer for each question.
Partial answers.
Unintelligible answers or no answers.

4-10 seemed to have at least some comprehension of questions, with variation in abilities to express them.

0-2 either didn't understand questions or had no information.

No No. 3.